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A DOVER COMPANY

PARTS AND SERVICE MANUAL

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TP1R2-10001-0312

Environmental Solutions Group
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Environmental Solutions Group
2030 Hamilton Place Blvd, Suite 200
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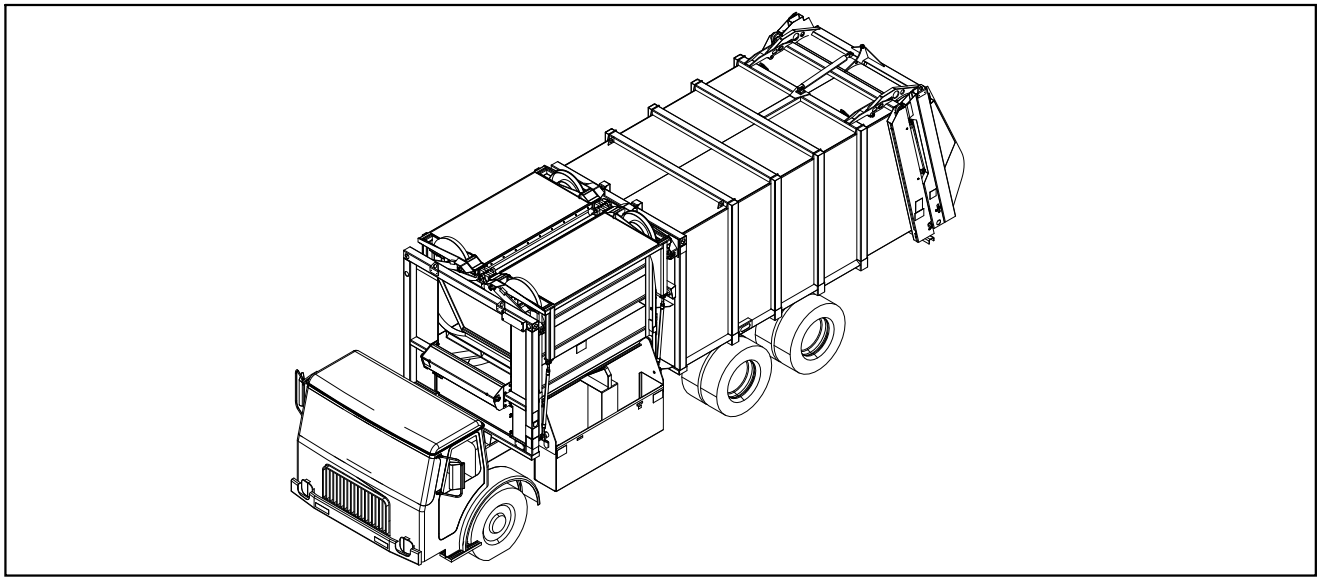
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1. UNDERSTANDING THE PARTS MANUAL

The Parts Manual is the first Manual of the Parts and Service Manual. (Not all illustrations in this section are from this Parts Manual. We have used illustrations from other Parts Manuals in order to have a common Section 1 for all Parts Manuals and to be consistent in our explanation across all Parts Manuals.

A. Parts Manual Sections

(1) The Parts Manual includes illustrations and parts listings of serviceable assemblies and attaching parts.

(2) The Parts Manual is made up of seven sections, not including Section 1, for easy access and use. Sections 2 - 7 contain the parts lists and technical illustrations for the unit divided into logical sections. Section 8 is a numerical index for the parts manual.

(3) Each section can be divided into logical sub-sections. Each logical sub-section has a page number and starts the sub-section. See Figure 1001. as the divider section is shown in the Table of Contents for Section 2, Body and Attaching Parts.

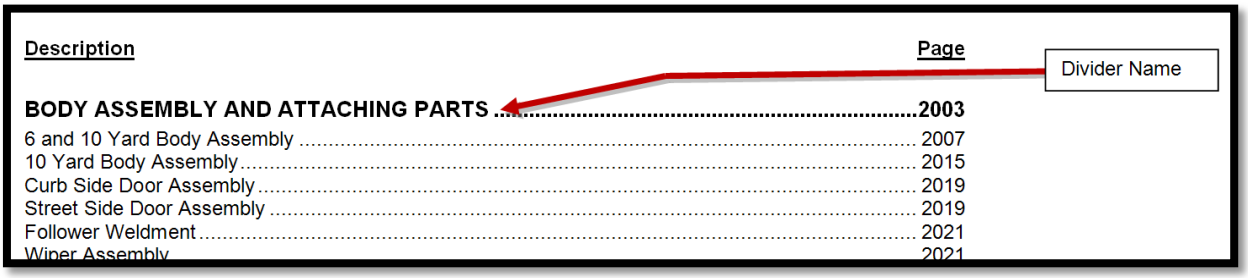


Figure 1001. Divider shown in a TOC

B. Parts Lists and Illustrations

(1) The Parts Lists and Illustrations (when available) show serviceable assemblies and sub-assemblies broken down to weldments, wear parts and attaching parts.

(2) Weldments that have no attaching parts or wear parts are not illustrated or shown in a Parts List., unless the weldment has a sub-assembly with wear parts or attaching parts.

(3) Schematics are not included in the Parts Lists unless parts are identified in a schematic with a Parts List.

(4) The Schematics are referenced to Service Manual Section 10 and included in Service Manual Section 10.

2. USING THE PARTS MANUAL

A. Parts Manual

See Figure 1002.

(1) The Parts Manual is divided into logical sections to help locate an assembly in the unit:

- Section 2 is the Body and Attaching Parts
- Section 3 is Controls
- Section 4 is Hydraulic (and Pneumatic as applicable) Circuits
- Section 5 is Hydraulic (and Pneumatic as applicable) Components
- Section 6 is Electrical
- Section 7 is Options.

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(2) Each section is assigned a page block for the page numbers.

(a) The page block for each section is a 1000-page block of numbers. For example, Section 2 is the 2000 page block; Section 3 is the 3000 page block and so on.

(b) The 1000-page block allows us to have sections that are more than 99 pages more easily and to more accurately create the Tables of Content (TOCs). In the past, we used "." pages after page 98, such as Page 99.1, which required us to manually create the TOC for that section.

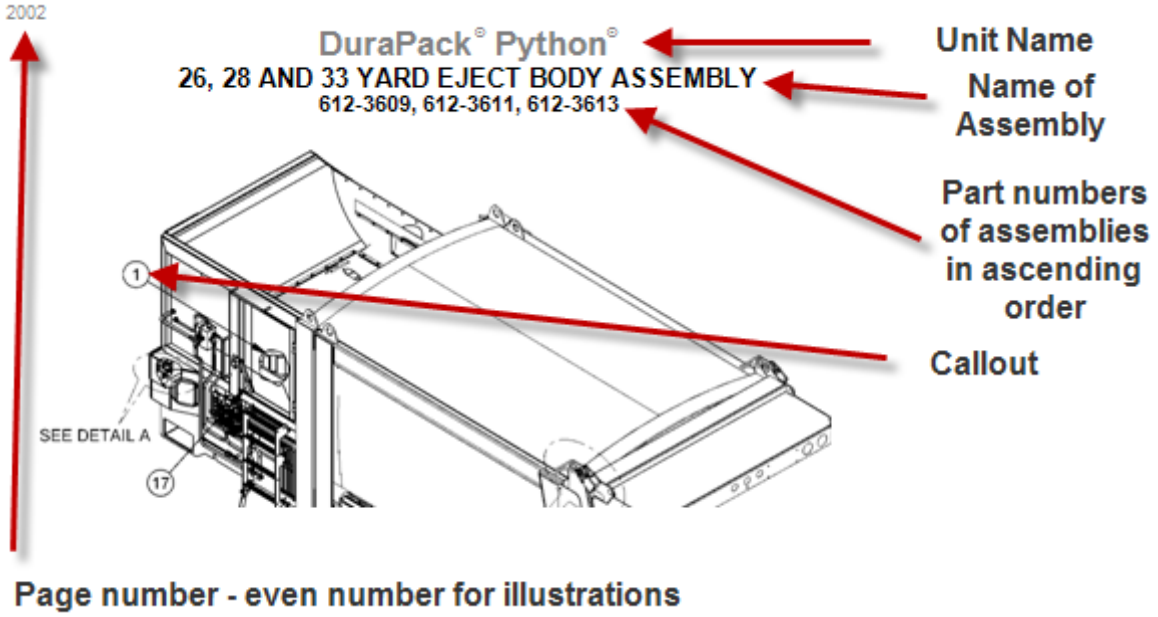


Figure 1002. Titles and Part Numbers

(3) The top of each page identifies the name of the assembly or multiple similar assemblies followed underneath with the part number for each assembly.

(4) Each assembly given in a section of the manual may have an illustration and will always have a Parts List.

(5) The left page (even-numbered page) is an illustration (when available) with callouts and the right page shows the matching Parts List.

(6) An illustration and Parts List may show two or more similar assemblies. The Parts List will identify the parts differences between the similar assemblies.

B. Illustration Page

See Figure 1002.

(1) Each illustration page consists of a drawing with numbered callouts showing all the parts of the assembly listed in the Parts List.

(2) Each callout on the page is a number, which is the same as the item number in the ITEM column in the Parts List.

(3) As we continue to upgrade the manuals, the illustrations will not show welded parts, unless the part is an assembly with a sub-assembly with wear parts or loose attaching parts.

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C. Parts List Page

See Figure 1003.

(1) The parts list is organized into five columns:

- ITEM – This number corresponds to the callout on the illustration
- PART NO. – The Heil part number associated with the referenced part on the illustration
- DESCRIPTION – Description of the associated part
- EFF – This is a letter code to identify each top assembly
- QTY – This is the number of parts needed in the top assembly.

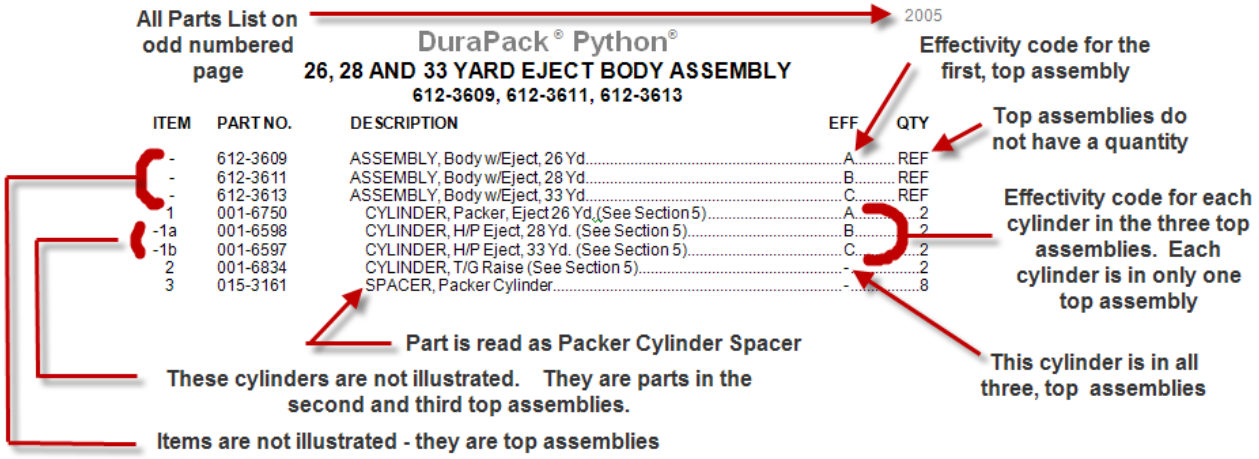


Figure 1003. Parts List

(2) A hyphen (-) preceding an item number shows that the item is not illustrated.

(3) The item number in the ITEM column for each part number has the same number as a call out on its matching illustration.

(a) When there are two assemblies identified at the top of the page, and each assembly uses a different (usually similar) part at the same location, the following item numbers are given an alpha variant designation after the item number.

(b) For example, when the assemblies at the top of a Parts List are 612-1111 and 612-1122, and 612-1111 uses a bolt (part number FS070714) at a location, it is given the designation as Item 12. When the 612-1122 assembly uses a bolt (part number FS070712) at the same location, it is given the designation as Item 12a.

(4) Part numbers are typically in the following format, where “n” is a number: nnn-nnnn. Some part numbers may look like nnn-nnnn-nnn. Use these numbers when you order parts.

(5) The descriptions are given in the following format: NOUN, MODIFIER, MODIFIER. For example, ASSEMBLY, Body, 16 yd.

(6) An effectivity code (“A” thru “Z” (does not include “I” or “O”)) or “–“ is given in the EFF column for each top assembly (and its parts) listed at the top of the page.

(a) For example, when there is only one assembly part number at the top of the page, the effectivity code is “-“ in the EFF column.

(b) For example, if the assembly part numbers at the top of the page are 612-1111 and 612-1122, the effectivity code “A” is shown in the EFF column for 612-1111 and the effectivity code “B” is shown in the EFF column for 612-1122.

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(7) An effectivity code, as defined above, is also given to each sub-assembly and part for each top assembly given at the top of the page.

(a) A "-" is in the EFF column for each assembly or part that is the same between two or more top assemblies.

(b) Each sub-assembly or part that is different for one or more of the part numbers at the top of the page is assigned the same effectivity code as the top assembly that the part or sub-assembly is in.

(c) For example, when the assembly part numbers at the top of the page are 612-1111 and 612-1122 and each top assembly uses the same bolt at Item 11 (FS070715), then the effectivity code for that bolt is "-".

When 612-1111 uses a bolt (part number FS070714) at Item 12 and 612-1122 uses a bolt (part number FS070712) at Item 12a, Item 12 is given an effectivity code of A and Item 12a is given an effectivity code of B.

(8) The following entries can appear in a parts list:

- A/R - AS REQUIRED (in the QTY column)
- NSS - NOT SERVICED SEPARATELY (in the PART NO. column). This means the part is not available for ordering individually. It is probably a part in another part number for ordering purposes, such as in a seal kit
- REF – REFERENCE (in the QTY column).

(9) When REF is in the QTY column, it indicates:

- The part is an assembly shown at the top of the page
- The part is in another assembly and listed and/or shown for reference purposes.

(10) The DESCRIPTION column may contain references to other pages in the current section of the Parts Manual; another section in the Parts Manual; a section in the Service Manual. (See Figure 1004.).

(a) See "Pg. xxxx" in the DESCRIPTION column indicates the page number where the Parts List is located for this assembly or part in this section of the Parts Manual.

(b) See "SM XX" in the DESCRIPTION column indicates the Section in the Service Manual where you find more information, which in this case is the schematic and is in Service Manual Section 10 – Schematics.

(c) See "Section X" in the DESCRIPTION column indicates is the Section in the Parts Manual where this assembly or part is shown with an illustration (when available) and a Parts List.

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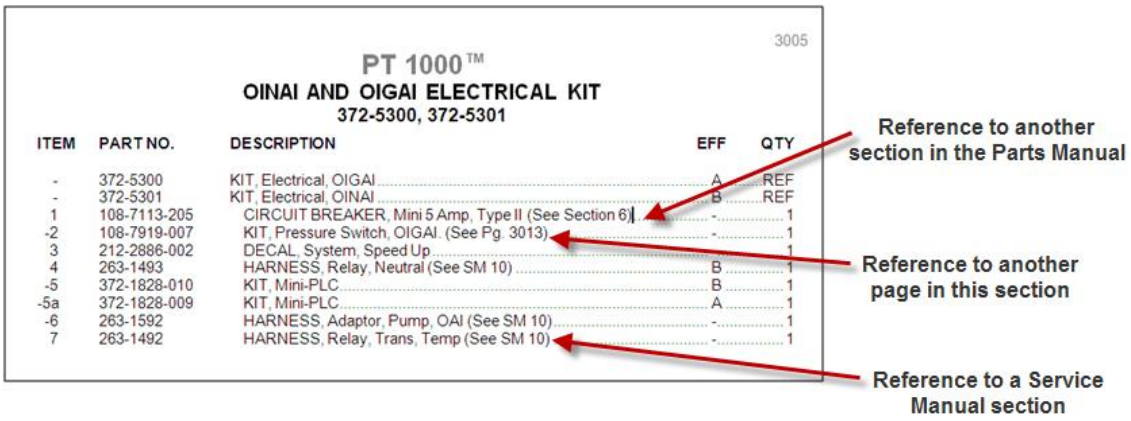


Figure 1004. Reference in DESCRIPTION

3. NUMERICAL INDEX

The Numeric Index consists of all parts with their respective page number.

Use the Numeric Index to help find part numbers in the Parts Manual.

4. HOW TO USE THE NUMERICAL INDEX

See Figure 1005. and Figure 1006.

A. Finding a Part Number in the Manual

You use the Numerical Index to find the Parts List page or pages that a part number is on. When you find the Part Number in the Numerical Index, the Numerical Index shows you what page or pages where the Part Number is listed in the Parts Manual.

B. Part Numbers in the Numerical Index

The parts are listed in ascending order, that is, the lowest numbered part starts the Numerical Index and the last part number is the highest alpha character.

(1) If part number 001-4105 (a cylinder) is the lowest part number in a manual, then it is the first part number given in the Numerical Index with the page or pages you can find the part number in one or more Parts List.

(2) If a part number is TAS-F158-050 and it is the highest alpha-based part number, then this part number would be the last part number in the Numerical Index with the page or pages you can find the part number in one or more Parts Lists.

(3) Once you have a Parts List page number for a part number, then you find the part number and its Item Number in the Parts List and can see the part in the related illustration, if available.

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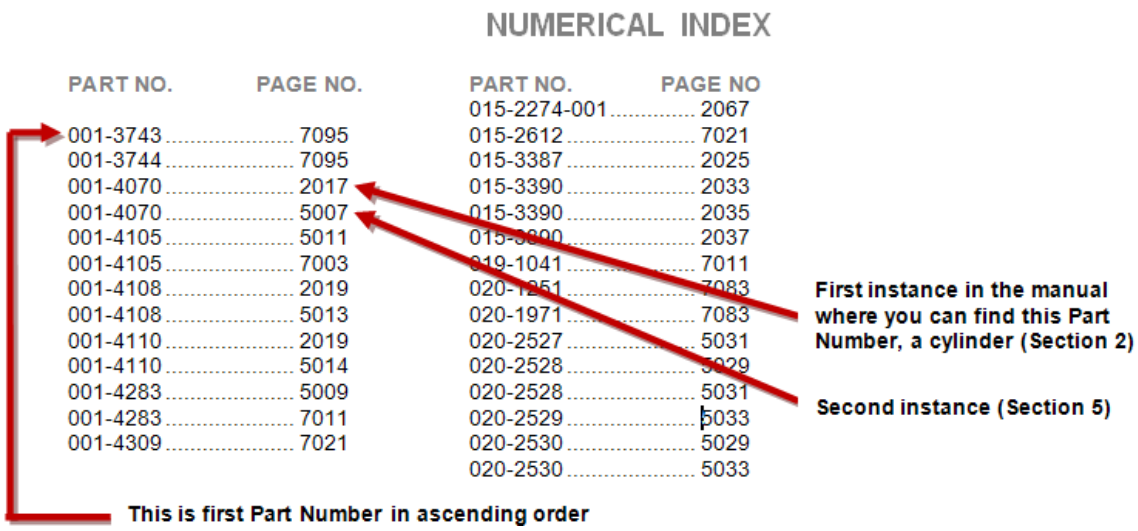


Figure 1005. Numerical Index – First Part Number

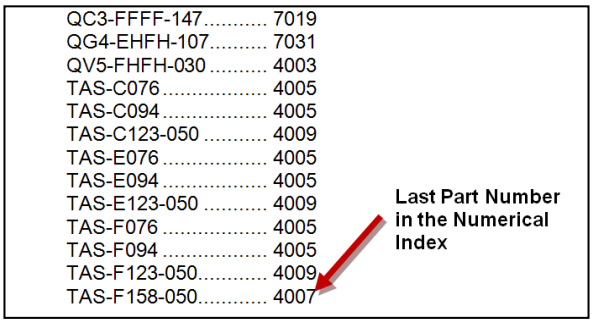


Figure 1006. Numerical Index – Last Part Number

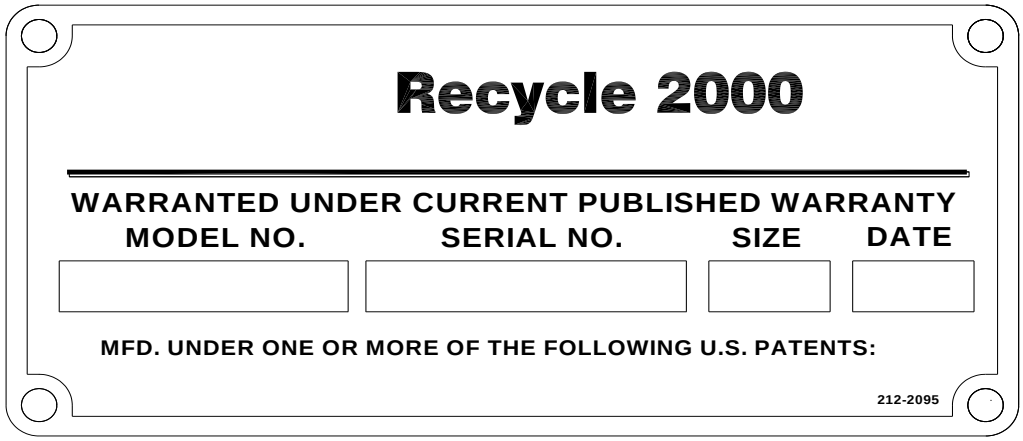
5. HEIL CUSTOMER SUPPORT

For inquiries about units, call Customer Care at 866-ASK-HEIL (866-275-4345).
For inquiries about parts, call Parts Central at 800-528-5308.
For Technical Service, call 866-310-4345.

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6. SERIAL PLATE



- Unit's unique serial number
- Body size (cu. yd.)
- Date of manufacture (last number of the year followed by the number of the day of the year, e.g. 6145 is year 2006 and the 145th day of 2006).

B. Year of Manufacture Information

The code for the year of manufacture is in accordance with FMVSS 115. See the following table.

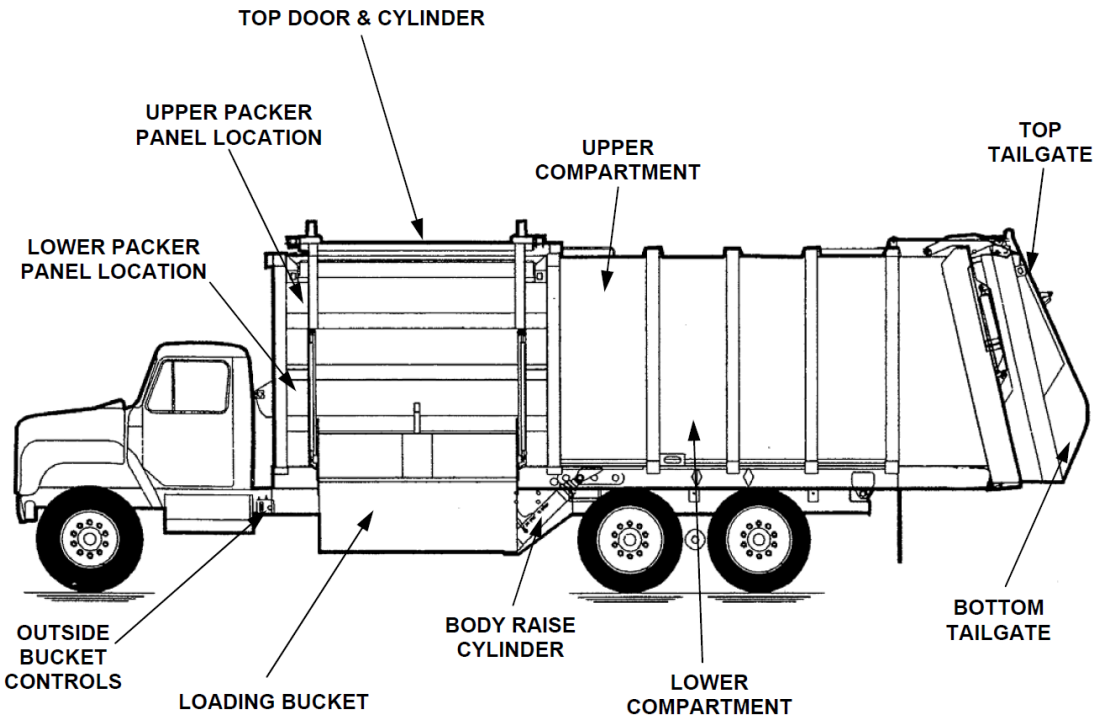
Year of Manufacture			
Year Code	**Year**	**Year Code**	**Year**
S	1995	5	2005
T	1996	6	2006
V	1997	7	2007
W	1998	8	2008
X	1999	9	2009
Y	2000	A	2010
1	2001	B	2011
2	2002	C	2012
3	2003	D	2013
4	2004	E	2014

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7. NOMENCLATURE

The following picture shows the major components and their typical location on the unit.



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8. RECOMMENDED SPARE PARTS

The following table gives a list of recommended spare parts for your unit. Heil recommends keeping the following parts on hand.

Part No.	Description	Qty
Body Assembly		
014-1550	PAD, Stop Top Door	4
003-3568	BEARING, Link Arm	2
003-4516	ROLLER	8
003-4161-001	BUSHING	8
003-4409-030	BUSHING	16
005-3904	LINK ARM	2
005-3904	LINK	4
014-1753	PAD, Bumper	2
022-3649	SEAL, Top Door	2
048-5059	PIN, T/G	2
048-5060	PIN, T/G Cylinder	2
048-5896	PIN, Link	2
048-5897	PIN, Link	2
048-5927	PIN, Container Link	8
048-5930	PIN, Hinge	4
048-5678	PIN, Body Hinge	2
048-5933-048	PIN	2
048-5933-053	PIN	6
048-5933-058	PIN	6
048-62220	PIN	2
003-3568	BEARING	8
003-3587	BEARING	4
048-5811-001	PIN	2
021-3685	SEAL, T/G	2
053-1594	HOOK	1
053-1595	HOOK	1
022-3503	SEAL, T/G	1
Pneumatic Components		
031-3785	SWITCH, Air Toggle	2
031-6297	VALVE, Toggle	2
031-5724-012	SOLENOID, Air	2
108-5354-006	BREATHER	2
031-1909	VALVE, Pressure Protection	1
075-0721	REGULATOR	1

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Part No.	Description	Qty
Controls		
108-8458	RELAY, Power Module	1
254-5724-012	SOLENOID, Air	1
063-0109	SWITCH, Proximity, 30 mm	2
Cylinders		
001-6953	CYLINDER, Hoist	2
001-6425	CYLINDER, Hoist	2
001-6400	CYLINDER, T/G Raise	2
001-6069	CYLINDER, Packer	2
001-6142	CYLINDER, Lift Arm	2
001-6720	CYLINDER, T/G Lock	2
Valves		
031-5838	VALVE, Control	1
031-2942	VALVE ,Pilot Operated Check	1
Oil Tank & Filters		
022-2707	GASKET, Oil Tank	1
060-0402-003	Gasket	1
067-0630	GAUGE, Thermometer Sight	1
075-0570	STRAINER	1
075-0712	FILTER, Breather	1
075-0912	FILTER, Return	1
075-0930	FILTER HEAD, Pressure	1
Electrical		
108-7010	SWITCH, Proximity	2
031-5724-012	SOLENOID, Air	2
063-0108	SWITCH, Proximity, NO, 18 mm	1
063-0109	SWITCH, Proximity, NO, 30 mm	51
108-7726	ALARM, Backup	1
115-0608	LIGHT, License	1
!15-1227	LIGHT, Red LED	8
115-1229	LIGHT, stop	1
115-1395	LIGHT, Mid-body Turn	2
115-1402	LIGHT, Clearance, Red	7
115-1403	LIGHT, Clearance, Amber	6
115-1411	LIGHT, Reverse	2
115-1417	LIGHT, Flood	2
108-7726	ALARM, Backup, Flush Mounted	1

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Electrical - Continued		
115-1409	LIGHT, Smart	2
115-1410	LIGHT, Smart	2
115-1419	LIGHT, Oval Strobe	7
115-1400	LIGHT, LED Flood	2
115-1226	LIGHT, Work	2
108-1814	SWITCH, Toggle	2
115-1232	LIGHT, Strobe	1
115-1229	LIGHT	2

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9. GLOSSARY

The Glossary is a collection of terms used in this manual and the explanation for each term. The terms are used in the descriptions of parts

°	Degree
#	Number
'	Feet
"	Inch
Amp.	Ampere
ANSI	American National Standard Institute
AWG	American Wire Gauge
BSP	British Standard Pipe
CS	Curb Side
DC	Direct Current
Dia.	Diameter
ESNA	
Ft.	Feet
Ga.	Gauge
Gal.	Gallon
Gr.	Grade
Hd.	Head
Hex.	Hexagonal
HR	High Resistance
HHCS	Hex Head Cap Screw
HR	
HRS	High Resistant Steel
Hyd.	Hydraulic
ID	Inside Diameter
I/O	Input/Output
JIC	Joint Industry Council
Lb.	Pound
Lg.	Length
LH	Left Hand
LED	Light Emitting Diode
Mach.	Machined
Mech.	Mechanism
Min.	Minimum
Misc.	Miscellaneous
MNPT	Male National Pipe Thread
mm.	Millimeter
Mtg.	Mounting
NC	Normally Closed
NO	Normally Open
No.	Number
NPT	National Pipe Thread
OAI	Operate at Idle
OD	Outside Diameter
Pec	
Pg.	Page
PLC	Programmable Logical Control
PSI	Pounds per Square Inch
PTO	Power Take Off
Ref	Reference
Rd.	Round
RH	Right Hand
RPM	Revolutions per Minute
SAE	Society of Automotive Engineers
Sec	
SS	Street Side
SM	Service Manual
SPST	Single Pole Single Throw
SQ	Square
S/S	Stainless Steel
Std.	Standard
Str.	Straight
SPST	Single Pole Single Throw
STT	Stop Tail Turn
THRPL	
Thd.	Thread
TPA	Terminal Position Assurance
V	Volts
W	Width
WM	Waste Management
WMS	Waste Management System
w/	With
Yd.	Yard

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SECTION 2
BODY AND ATTACHING PARTS

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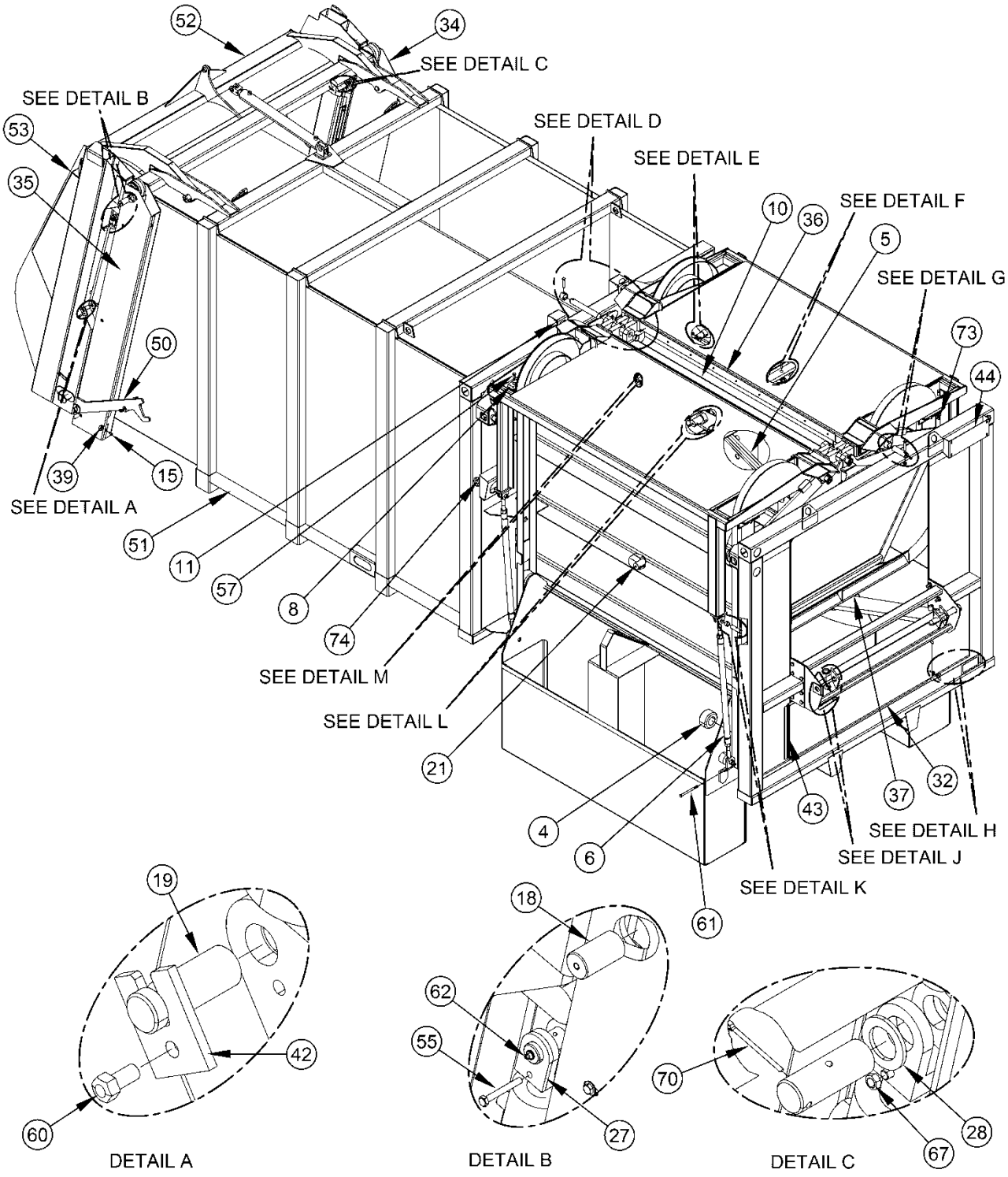
BODY ASSEMBLY AND ATTACHING PARTS

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33 AND 38 YARD BODY ASSEMBLIES

612-2975-033, 612-2975-038



SHEET 1 OF 3

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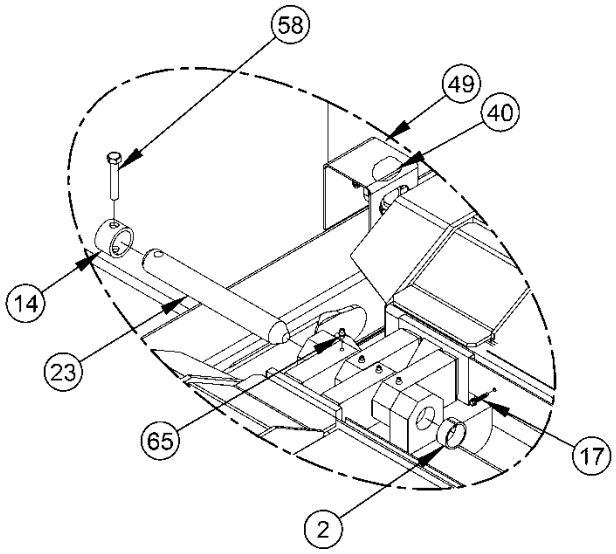
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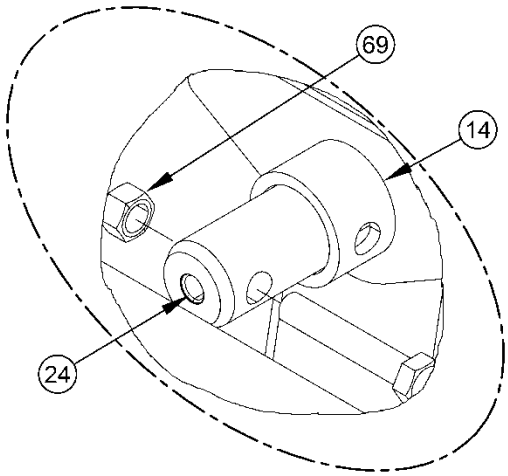
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33 AND 38 YARD BODY ASSEMBLIES

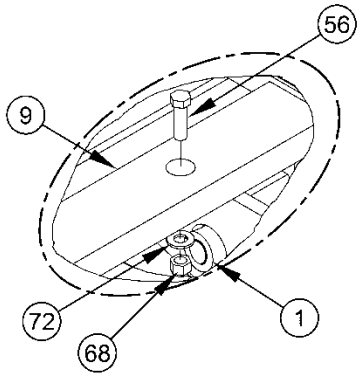
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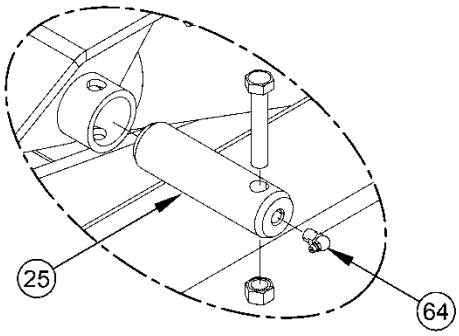
DETAIL D



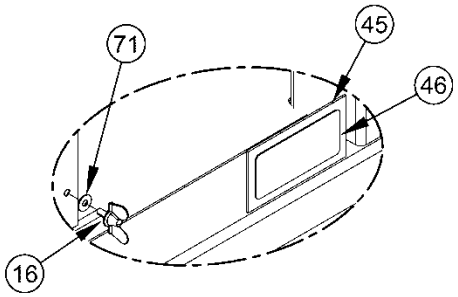
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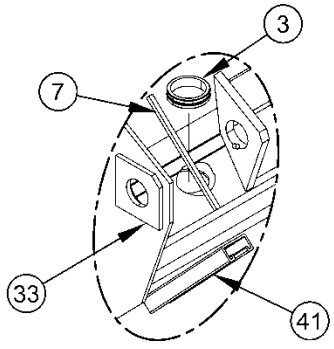
DETAIL F



DETAIL G



DETAIL H



DETAIL J

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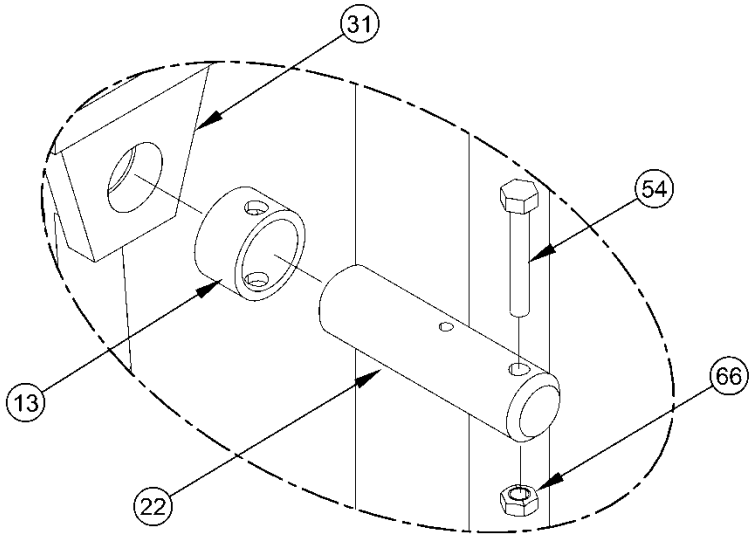
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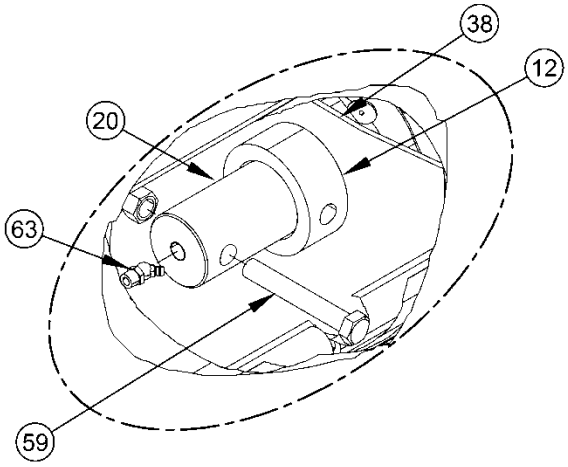
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33 AND 38 YARD BODY ASSEMBLIES

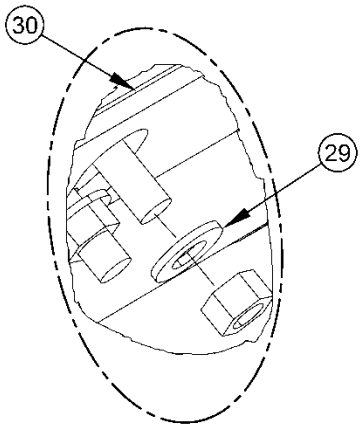
612-2975-033, 612-2975-038



DETAIL K



DETAIL L



DETAIL M

SHEET 3 OF 3

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33 AND 38 YARD BODY ASSEMBLIES

612-2975-033, 612-2975-038

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	612-2975-033	ASSEMBLY. Body, 33 Yd.	A	REF
-	612-2975-038	ASSEMBLY, Body, 38 Yd.	B	REF
1	003-4161-001	BEARING, Self Lubricating, 1-1/2”	-	4
2	003-4409-030	BUSHING, Tension, 3/4"	-	16
3	003-4514-010	GROMMET, Rubber, Black, 2”	-	1
4	003-4516	ROLLER, Cross Linked, Glass Filled UHMW	-	8
5	005-3750	ASSEMBLY, Link Arm (See Pg. 2013)	-	2
6	005-3904	ASSEMBLY, Link (See Pg. 2013)	-	4
7	013-5203-002	LEVER, HR Bar, 1/4” x 1/4"	-	1
8	014-1550	PAD, Stop, Top Door	-	4
9	014-1753	PAD, Bumper, 80 Durometer Neoprene	-	2
10	022-3649	SEAL, Top Door, Fiber Reinforced, 1/8”	-	1
11	036-1474-009	ASSEMBLY, Clamp, Hydraulic Tubing, 1-1/4”	-	2
12	040-2201	COLLAR, Retaining	-	4
13	040-2219	COLLAR, Retaining, 1”	-	8
14	040-2228	COLLAR, Steel Tube, 1.5” ID x 2” OD	-	18
15	047-1758	BOLT, Sliding Door, 3/8”-16 x 3/4" Lg. Self Tapping, Hex. Hd.	-	10
16	047-1791	SCREW, Wing, 5/16”-18 Thd.	-	2
17	047-2151-012	SCREW, Tek, #12 x 1-1/4”	-	18
18	048-5059	PIN, Tailgate, Pivot, 1-1/2” Dia.	-	2
19	048-5060	PIN, Tailgate Cylinder, 1” Dia.	-	2
20	048-5896	PIN, Link	-	2
21	048-5897	PIN, Link	-	2
22	048-5927	PIN, Container Link, 1” Dia.	-	8
23	048-5930	PIN, Hinge, Top Door	-	4
24	048-5933-048	PIN, Induction, Hardened, w/Extraction Threads, 1-1/2” Dia., 4.8”	-	2
25	048-5933-053	PIN, Induction, Hardened, w/Extraction Threads, 1-1/2” Dia., 5.3”	-	6
-26	048-5933-058	PIN, Induction, Hardened, w/Extraction Threads, 1-1/2” Dia., 5.8”	-	6
27	048-6220	ASSEMBLY, Pin, Tailgate Cylinder, Rod End (Item Welded)	-	2
28	055-1119-002	WASHER, 1.12 ID x 1.75 OD, #10 Ga.	-	2
29	055-1391-003	WASHER, Steel, Hardened, 3/8” x 13/16” Thickness, Zinc, Plated	-	48
30	093-2205	DEFLECTOR, 3/16”	-	4
31	112-8681	DOOR, Top (Item Welded)	-	2
32	112-8796	COVER, Front Head, #14 Ga.	-	1
33	112-8837	PLATE, Packer Cylinder, Base, 1/4" HRS	-	2
34	113-2683	COVER, Corner Post, SS, 12 Ga.	-	1
35	113-2684	COVER, Corner Post, CS, 12 Ga.	-	1
36	126-3648	RETAINER, Pad, Top Door, #11 Ga. HRS	-	2
37	134-9021	WELDMENT, Packer, Lower	-	1
38	134-9714	WELDMENT, Packer, Upper	-	1
39	207-2623	NUT, Weld, 5/16”-18	-	2
40	207-2938-006	CHANNEL, Hydraulic, Tube Clamp, 3”	-	2
41	207-2938-007	CHANNEL, Hydraulic, Tube Clamp, 8”	-	1
42	207-3422	PLATE, Keeper, 1-1/4” Dia. Shaft	-	2
43	211-1665-006	COVER, Corner Post, Bracket, 18”, #14 Ga.	-	1
44	211-2657	BRACKET, Logo, 12 Ga.	-	1
45	211-7188	BRACKET, Serial Plate, #11 Ga.	-	1

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33 AND 38 YARD BODY ASSEMBLIES

612-2975-033, 612-2975-038

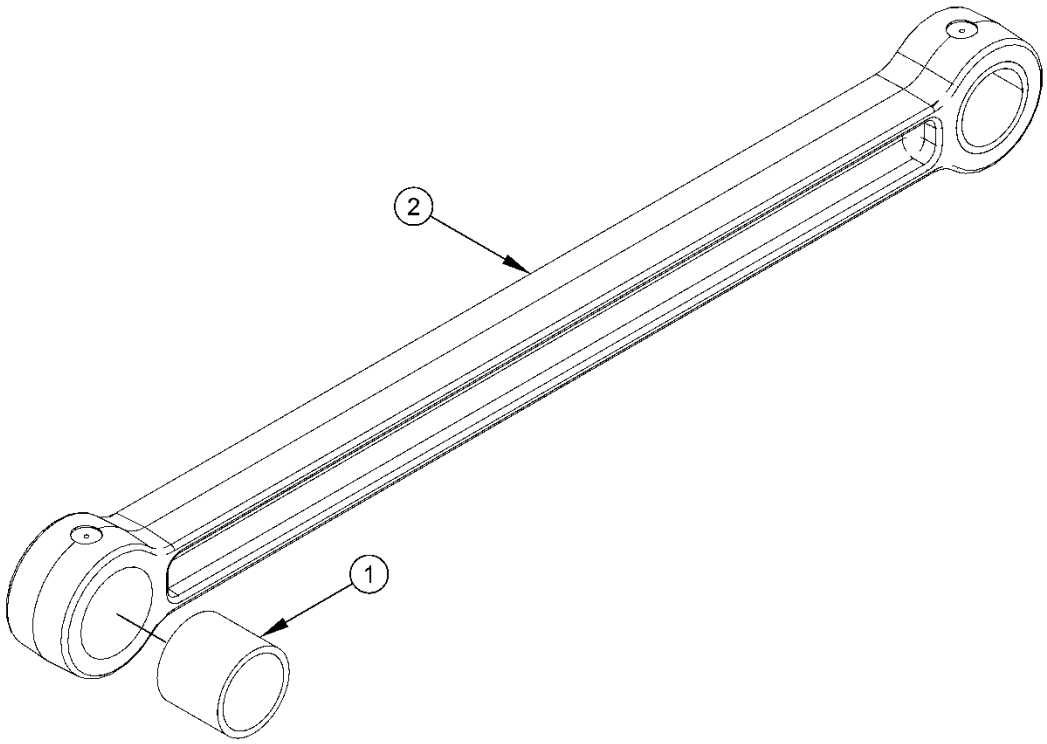
ITEM	PART NO.	DESCRIPTION	EFF	QTY
46	212-2095	PLATE, Serial	-	1
-47	272-4342	INSTALLATION, Bumper (See Pg. 2015)	-	1
-48	272-5980-033	KIT, Hydraulics, Body, 33 Yd. (See Section 4)	A	1
-48a	272-5980-038	KIT, Hydraulics, Body, 38 Yd. (See Section 4)	B	1
49	311-0649	BRACKET, Proximity, Mtg.	-	2
50	372-0369	INSTALLATION, Tailgate Prop, Lower (See Pg. 2015)	-	1
51	612-2505	WELDMENT, Body, 33 Yd.	A	1
-51a	612-2530	WELDMENT, Body, 38 Yd.	B	1
52	615-4721	INSTALLATION, Tailgate, Upper (See Pg. 2019)	-	1
53	615-4735	ASSEMBLY, Tailgate, Lower (See Pg. 2023)	-	1
54	FS070726	HHCS, 1/4"-20 x 1-3/4”, Gr. 5	-	8
55	FS070836	HHCS, 5/16”-18 x 2-3/4”, Gr.5	-	2
56	FS070922	HHCS, 3/8”-16 x 1-1/4”, Gr. 5	-	30
57	FS071122	HHCS, 1/2”-13 x 1-1/4", Gr. 5	-	8
58	FS071136	HHCS, 1/2"-13 x 2-3/4", Gr. 5	-	20
59	FS071144	HHCS, 1/2”-13 x 3-1/2”, Gr. 5	-	4
60	FS100915	HHCS, 3/8”-24 x 3/4", Gr. 5	-	2
61	FS171174	CAPSCREW, Thumbscrew and Special, 1/2" x 6-1/2”	-	4
62	FS190400	FITTING, Grease, Str., 1/8” NPT	-	8
63	FS190445	FITTING, Grease, 1/8” NPT, 45°	A	2
-63a	FS190445	FITTING, Grease, 1/8” NPT, 45°	B	6
64	FS190490	FITTING, Grease, 90°, 1/8” NPT	-	6
65	FS190700	FITTING, Grease, Str., 1/4"	-	20
66	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	8
67	FS230800	NUT, Lock, 5/16”-18, Gr. 5	-	2
68	FS230900	NUT, Lock, 3/8”-16, Gr. 5	-	30
69	FS231100	NUT, Lock, 1/2”, Gr. 5	-	34
70	FS340630	PIN, Cotter, 3/16” x 2”, Steel	-	2
71	FS510800	WASHER, Flat, 5/16”, Std., Plain	-	2
72	FS510900	WASHER, Flat, 3/8”, Std., Plain	-	6
73	FS511100	WASHER, Flat, 1/2” Std., Plain	-	12
74	FS902001	PLUG, Pipe, Iron, 1’’x 1/16” NPT	-	2

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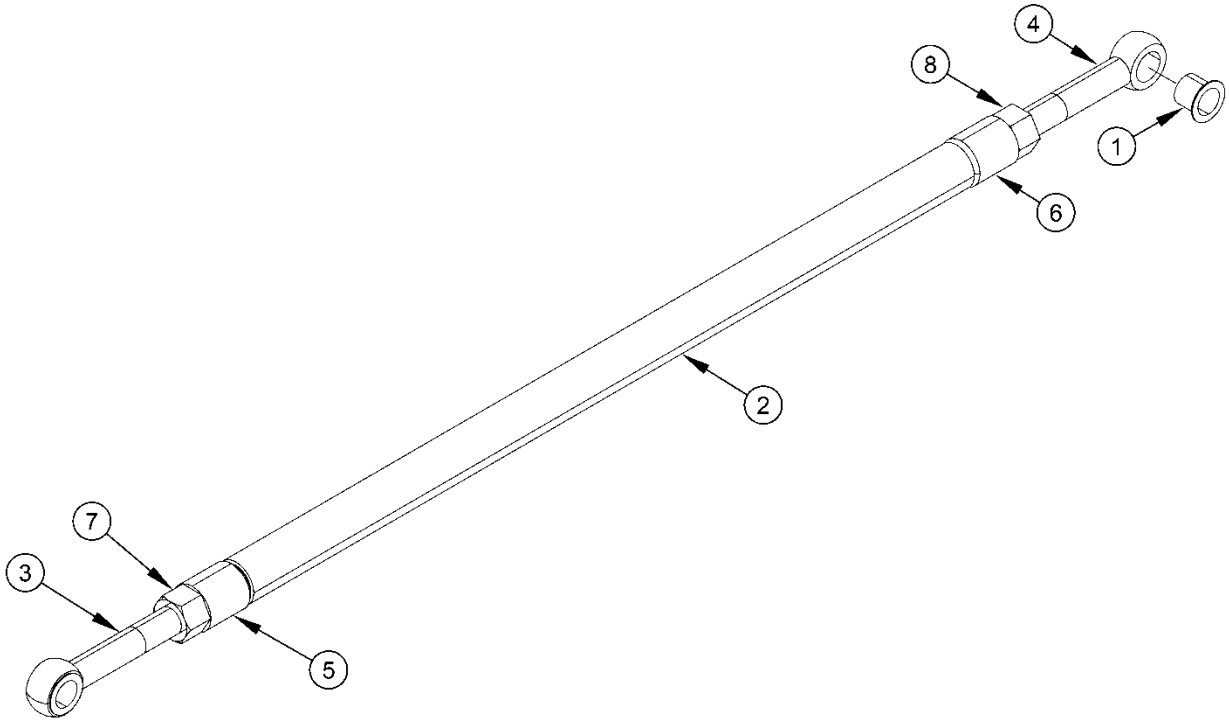
LINK ARM ASSEMBLY

005-3750



LINK ASSEMBLY

005-3904



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LINK ARM ASSEMBLY
005-3750

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	005-3750	ASSEMBLY, Link Arm	-	REF
1	003-3587	BUSHING	-	2
2	005-3750-C	ARM, Link, Upper	-	1

LINK ASSEMBLY
005-3904

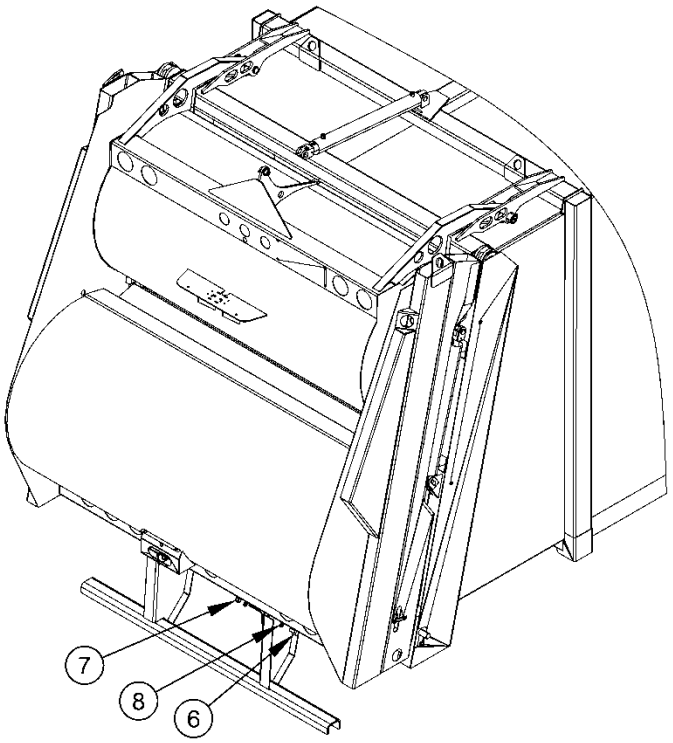
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	005-3904	ASSEMBLY, Link	-	REF
1	003-3568	BEARING, Link Arm	-	2
2	005-3904-001	PIPE, 1-1/4”, 1.660 OD x 0.140 Wall	-	1
3	005-3904-002	BOLT, Eye, LH Thread	-	1
4	005-3904-003	BOLT, Eye, RH Thread	-	1
5	005-3904-004	NUT, LH Thd., Special, 1-3/4” OD x 1/2” Wall	-	1
6	005-3904-005	NUT, RH Thd., Special, 1-3/4” OD x 1/2” Wall	-	1
7	047-2281-001	NUT, Hex, LH Thd., 1-8”, Gr.5	-	1
8	047-2281-002	NUT, Hex, RH Thd., 1-8”, Gr.5	-	1

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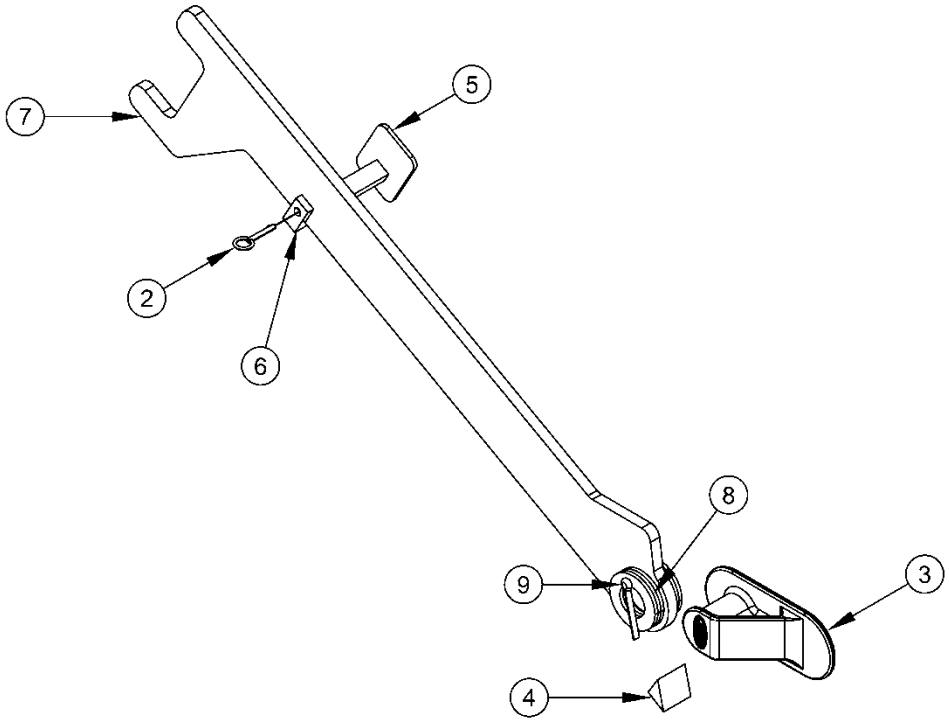
BUMPER INSTALLATION

272-4342



LOWER TAILGATE PROP INSTALLATION

372-0369



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BUMPER INSTALLATION
272-4342

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-4342	INSTALLATION, Bumper	-	REF
-5	272-4419	KIT, Decal	-	1
6	FSP101324	HHCS, 5/8”-18 x 1-1/2”, Gr. 5, Plated	-	6
7	FSP271300	NUT, Hex, 5/8”-18, Plain	-	6
8	FSP521300	WASHER, Flat, 5/8”, SAE, Plated	-	12

Note: Items 1-4 are Welded.

LOWER TAILGATE PROP INSTALLATION
372-0369

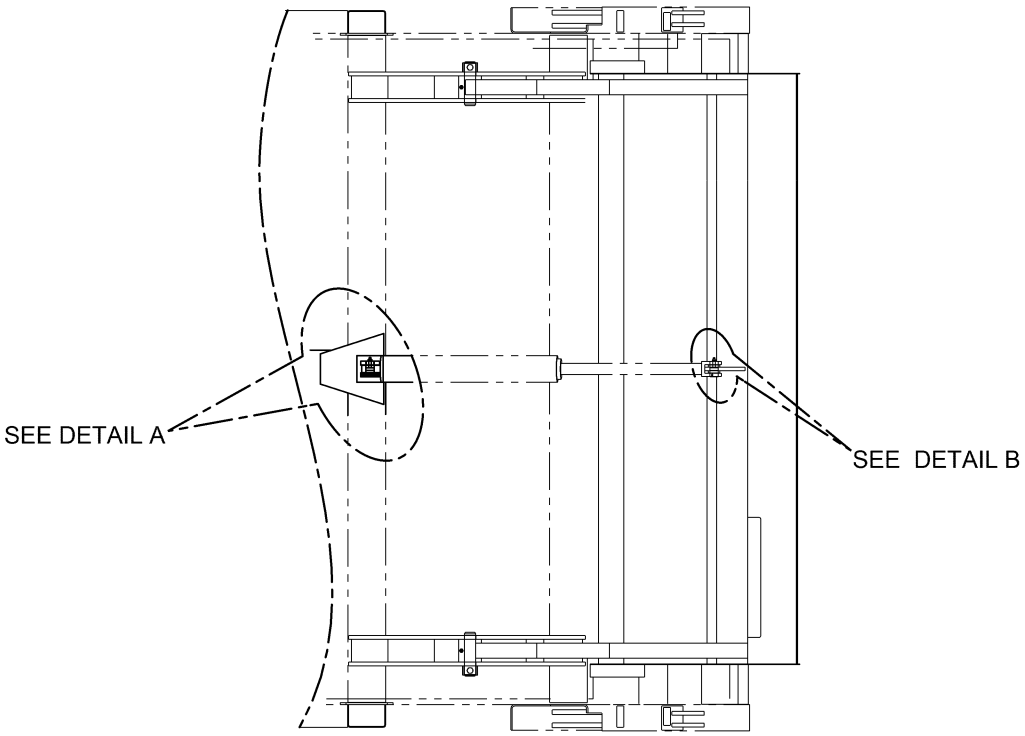
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-0369	INSTALLATION, Tailgate Prop, Lower	-	REF
-1	043-0277	CHAIN, Sash, 8’’, Zinc Plated	-	2
2	048-7168	PIN, Ring, Detent, 5/16” x 1-1/2”	-	2
3	135-0664	BRACKET, Tailgate Prop, Rear	-	2
4	177-4907	STOP, Tailgate Prop, 1” x 1-1/2” HRS Bar	-	2
5	177-4908	PLATE, Support, 3/16”	-	2
6	177-4909	PLATE, Support, Tailgate Prop, 3/4" x 1-1/2” HRS Bar	-	2
7	177-4910	BAR, Support, Tailgate, 1/2" Plate	-	2
8	FS340730	PIN, Cotter, 1/4" x 2", Steel	-	4
9	FS522200	WASHER, Flat, 1-1/4”, SAE, Plain	-	12

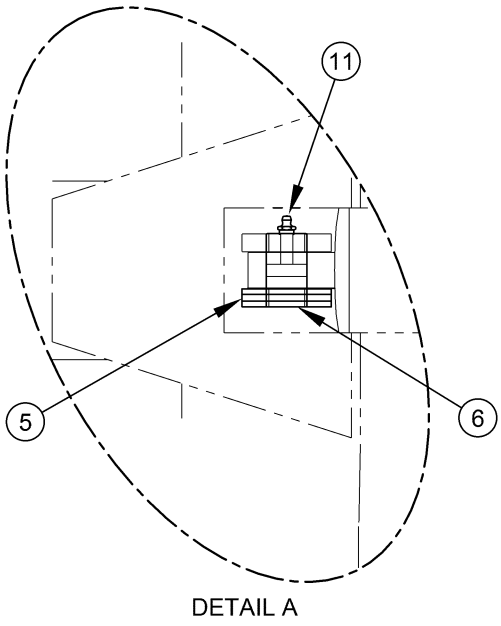
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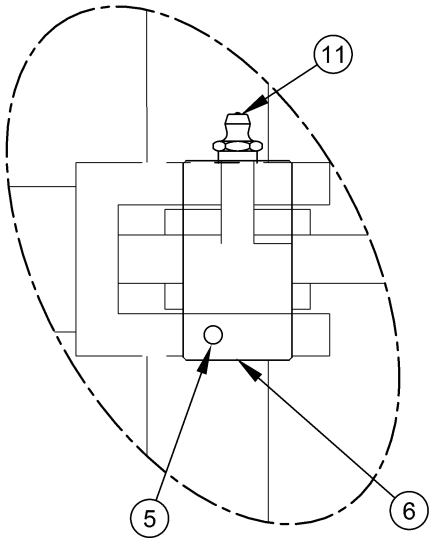
UPPER TAILGATE INSTALLATION

615-4721





DETAIL A



DETAIL B

SHEET 1 OF 2

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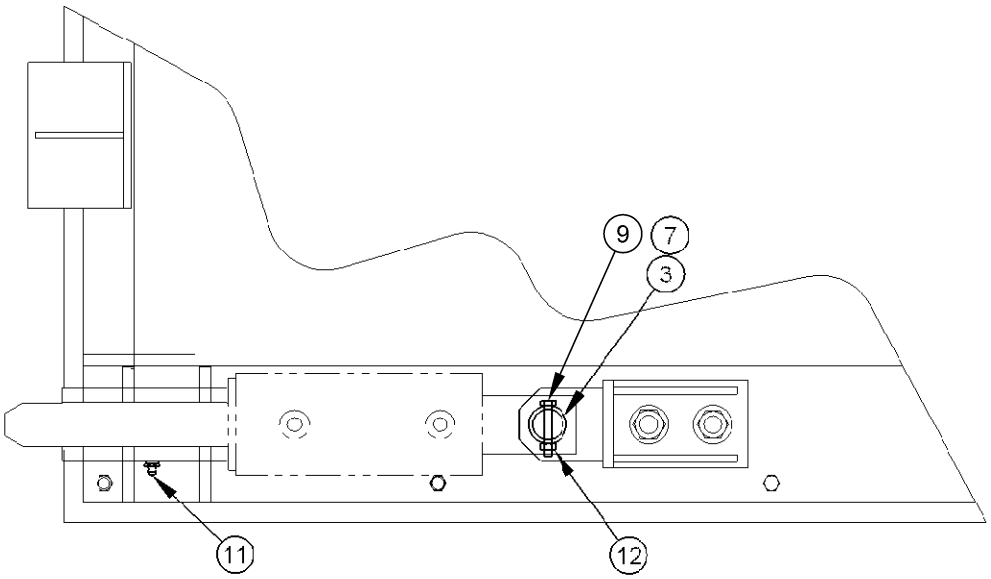
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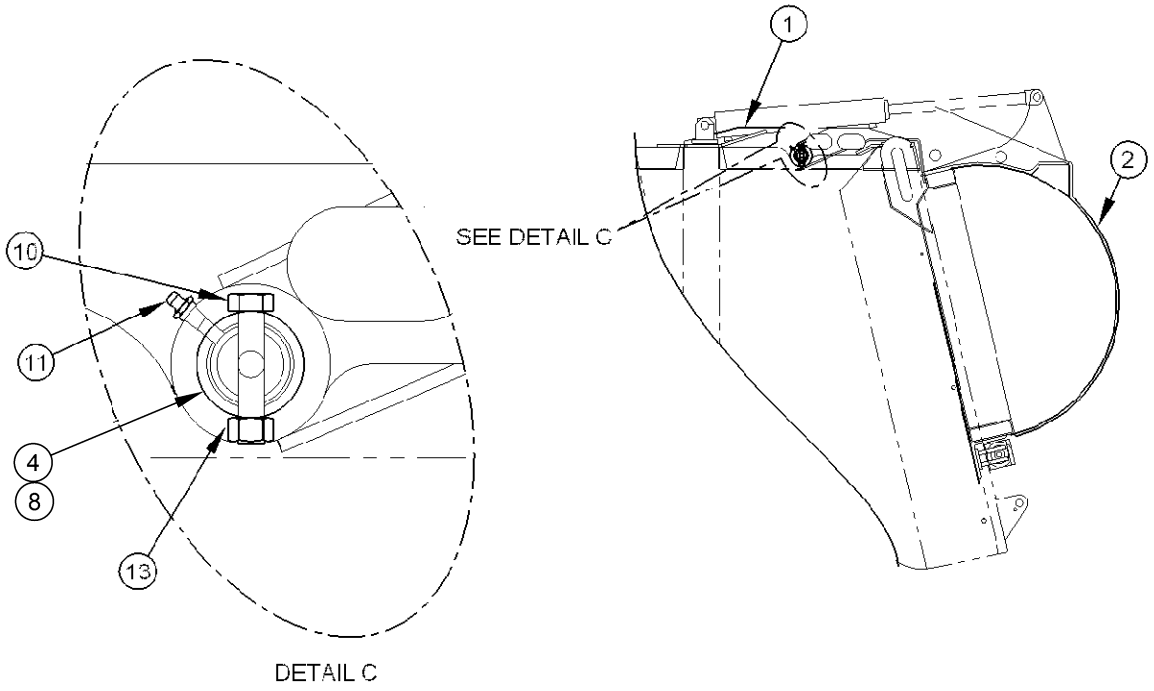
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UPPER TAILGATE INSTALLATION

615-4721





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UPPER TAILGATE INSTALLATION

615-4721

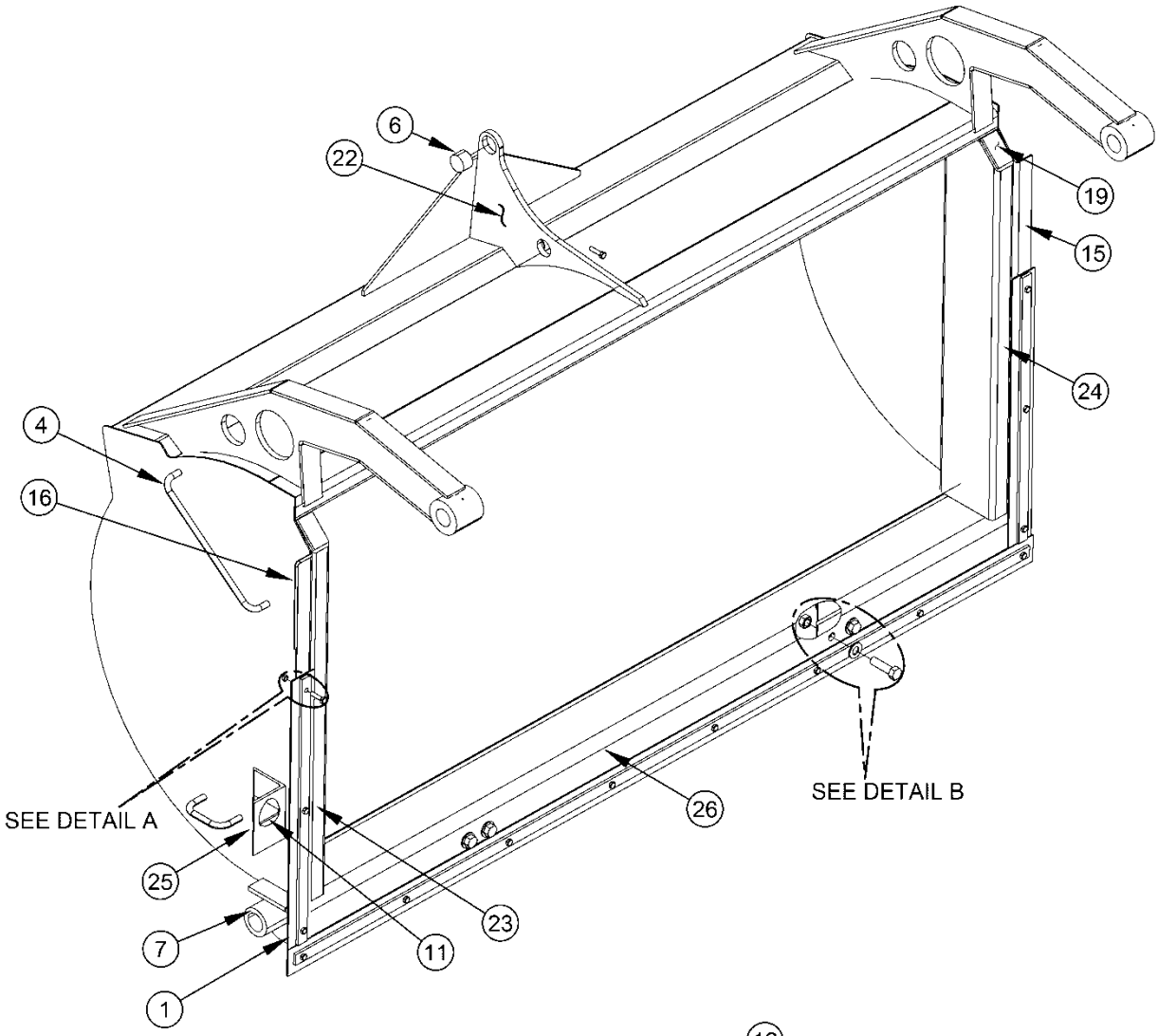
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	615-4721	INSTALLATION, Tailgate, Upper	-	REF
1	211-8553	BRACKET, Mtg., Tailgate	-	2
2	615-4142	WELDMENT, Tailgate, Upper (See Pg. 2021)	-	1
3	040-2219	COLLAR, Retaining, 1”	-	2
4	040-2228	COLLAR, Steel Tube, 1.50” ID x 2” OD	-	2
5	048-2270-017	PIN, Roll, 3/16" Dia., ESNA	-	2
6	048-2852	PIN, Mounting, Piston Rod, 1-1/8” Dia.	-	2
7	048-5811-001	PIN, Tailgate Cylinder, 3”	-	2
8	048-5933-058	PIN, Induction, Hardened, w/Extraction Threads, 1-1/2” Dia., 5.8”	-	2
9	FS070726	HHCS, 1/4"-20 x 1-3/4”, Gr. 5	-	2
10	FS071134	HHCS, 1/2"-13 x 2-1/2”, Gr. 5	-	2
11	FS190400	FITTING, Grease, Str., 1/8” NPT	-	6
12	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	2
13	FS231100	NUT, Lock, 1/2”, Gr. 5	-	2

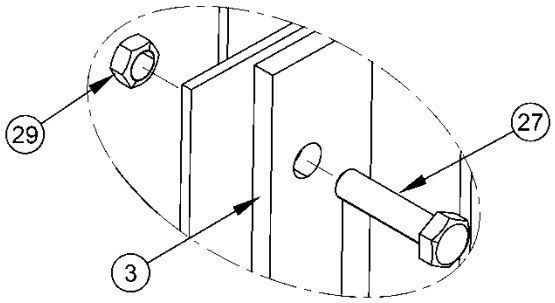
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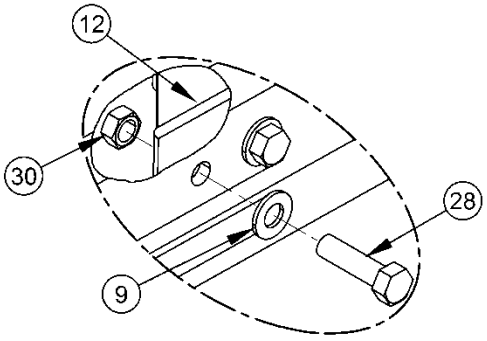
UPPER TAILGATE WELDMENT

615-4142





DETAIL A



DETAIL B

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UPPER TAILGATE WELDMENT

615-4142

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	615-4142	WELDMENT, Tailgate, Upper	-	REF
1	021-3685	SEAL, Tailgate, Inner, 1/8”	-	2
3	021-3687	SEAL, Retainer, 1/4" x 1”	-	2
4	035-2602	GUARD, Hose, Tailgate, 1/2" Dia.	-	1
6	040-2056-003	COLLAR, Blank	-	1
7	040-2451	BOSS, Tailgate Lock, 2-1/2” Dia.	-	2
9	055-1391-007	WASHER, Steel, Hardened, 5/8" x 1/8” Thickness, Zinc, Plated	-	4
11	134-9021-015	GUSSET, Lower Packer, #7 Ga.	-	2
12	211-8552	BRACKET, Lock Cylinder	-	2
15	234-1947	SHEET, Side, Tailgate, SS, 10 Ga.	-	1
16	234-1948	SHEET, Side, Tailgate, CS, 10 Ga.	-	1
19	615-4142-005	CLOSURE, Tailgate, Upper, 1/4"	-	2
22	615-4142-008	BRACKET, Cylinder, Upper Tailgate, 1/2"	-	1
23	615-4142-012	TUBE, Tailgate, Upper, 2 x 4 x 1/4" Wall	-	1
24	615-4142-013	TUBE, Tailgate, Upper, 2 x 6 x 3/16 Wall	-	2
25	615-4142-019	ANGLE, Stop, 3-1/2 x 3-1/2 x 1/4 Wall	-	2
26	615-4142-020	PLATE, Angle, Tailgate Lock, Upper Tailgate, 3/8” Plate	-	1
27	FS070822	HHCS, 5/16”-18 x 1-1/4”, Gr. 5	-	14
28	FS071332	HHCS, 5/8”-11 x 2-1/4”, Gr. 5	-	4
29	FS230800	NUT, Lock, 5/16”-18, Gr. 5	-	14
30	FS231300	NUT, Lock, 5/8”-11, Gr. 5	-	4

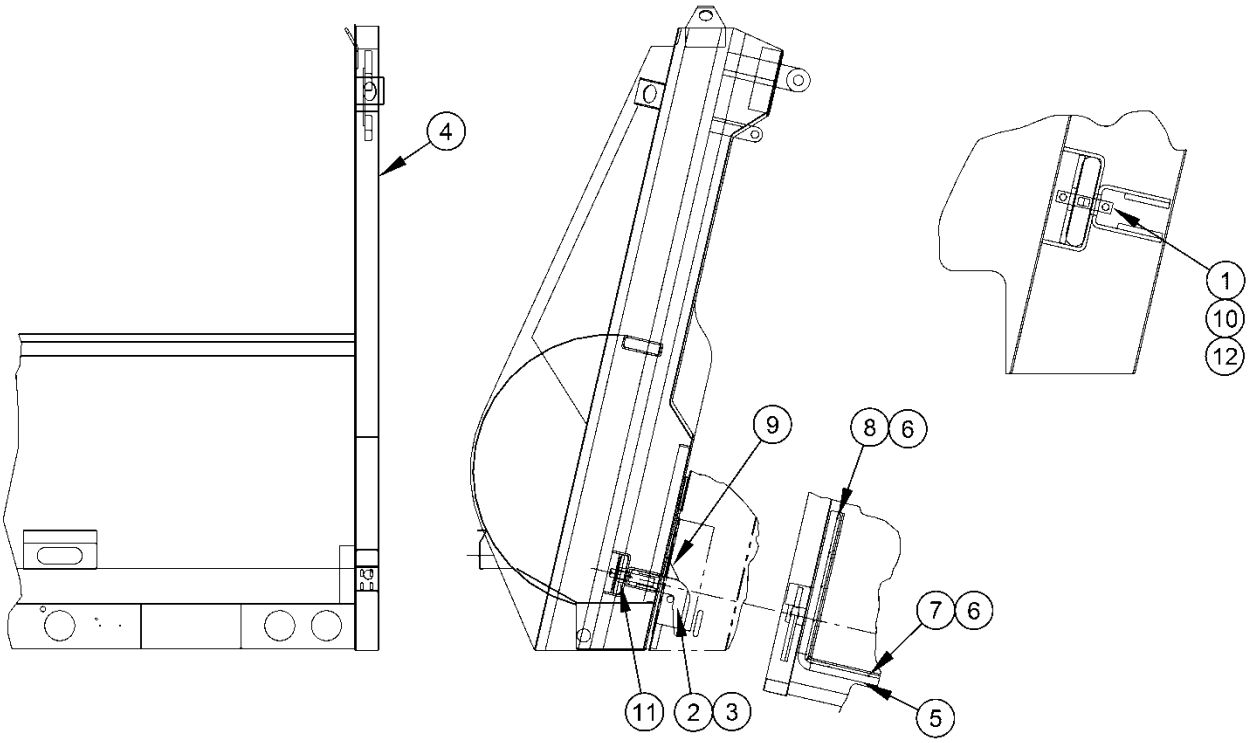
Note: Items 2, 5, 8, 10, 13, 14, 17, 18, 20 and 21 are Welded.

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LOWER TAILGATE ASSEMBLY

615-4735



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LOWER TAILGATE ASSEMBLY

615-4735

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	615-4735	ASSEMBLY, Tailgate, Lower	-	REF
1	021-3659	NUT, Retainer	-	2
2	053-1594	ASSEMBLY, Hook, Tailgate Latch, SS	-	1
3	053-1595	ASSEMBLY, Hook, Tailgate Latch, CS	-	1
4	615-4141	WELDMENT, Tailgate, Lower	-	1
5	022-3503	SEAL, Tailgate	-	1
6	047-2151-005	SCREW, Tek #5, #12-24 x T 1/4"	-	26
7	064-2999	SEAL, Tailgate, Retainer, Horizontal, 3/16” x 3/4"	-	1
8	064-3017	SEAL, Tailgate, Retainer, Vertical, 3/16” x 3/4"	-	2
9	126-2828	BRACE, Hook	-	2
10	FS100713	HHCS, 1/4”-28 x 5/8”, Gr. 5	-	4
11	FS272200	NUT, Hex, 1-1/4”, Plain	-	2
12	FS510700	WASHER, Flat, 1/4”, Std., Plain	-	4

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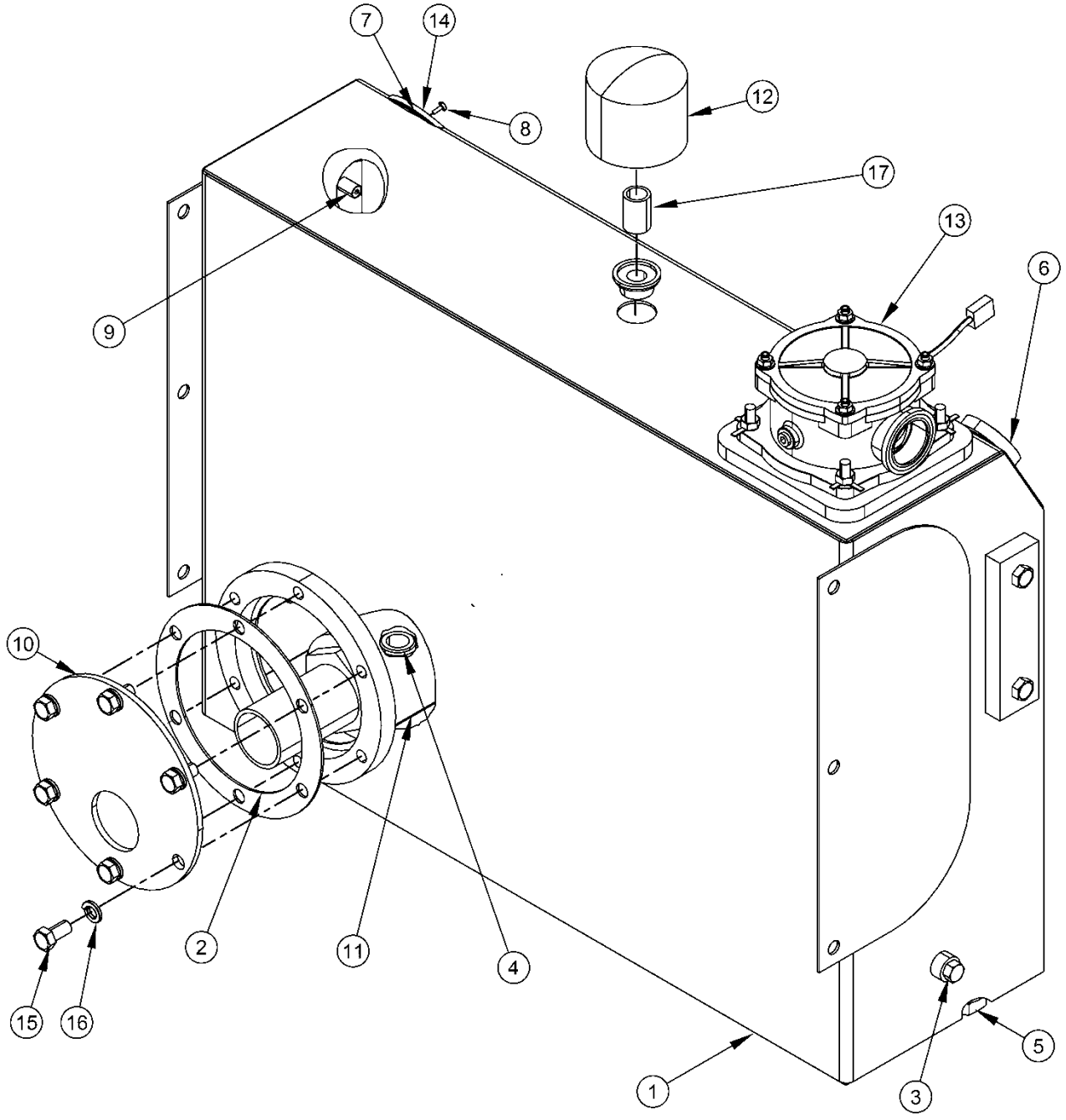
OIL TANK ASSEMBLY

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OIL TANK ASSEMBLY

020-2109



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OIL TANK ASSEMBLY

020-2109

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	020-2109	ASSEMBLY. Oil Tank (Thin Tank)	-	REF
1	020-2108	WELDMENT, Oil Tank (Thin Tank)	-	1
2	022-2707	GASKET, Oil Tank	-	1
3	054-3342-005	PLUG, Str. Thd., 9/16”-18 x 3/8”, #6	-	2
4	054-3342-010	PLUG, Str. Thd., 1-5/16”-12 x 1”, #16	-	1
5	054-9547-010	PLUG, Drain, Magnetic, 1-5/16”-12 x 1”, #16	-	1
6	060-0417	CAP, Filler, 4”	-	1
7	060-0402-003	GASKET, 2, 57 x L-8	-	1
8	060-0402-005	SCREWS, Swaging, Self, 6”, Lenz, 57 x L-9	-	6
9	067-0630	GAUGE, Sight, Thermometer	-	1
10	074-3626	FLANGE, Oil Tank, Baffled	-	1
11	075-0570	STRAINER, Suction, 100 Mesh	-	1
12	075-0712	FILTER, Breather	-	1
13	075-0912	FILTER, Return Line (See Section 5)	-	1
14	112-8781	COVER, Filler Cap, 3-1/2”, Hole, #14 Ga.	-	1
15	FS071120	HHCS, 1/2"-13 x 1”, Gr. 5	-	8
16	FS541100	WASHER, Lock, 1/2”, Plain	-	6
17	FS881500	NIPPLE, Black Std., 3/4" x Close	-	1

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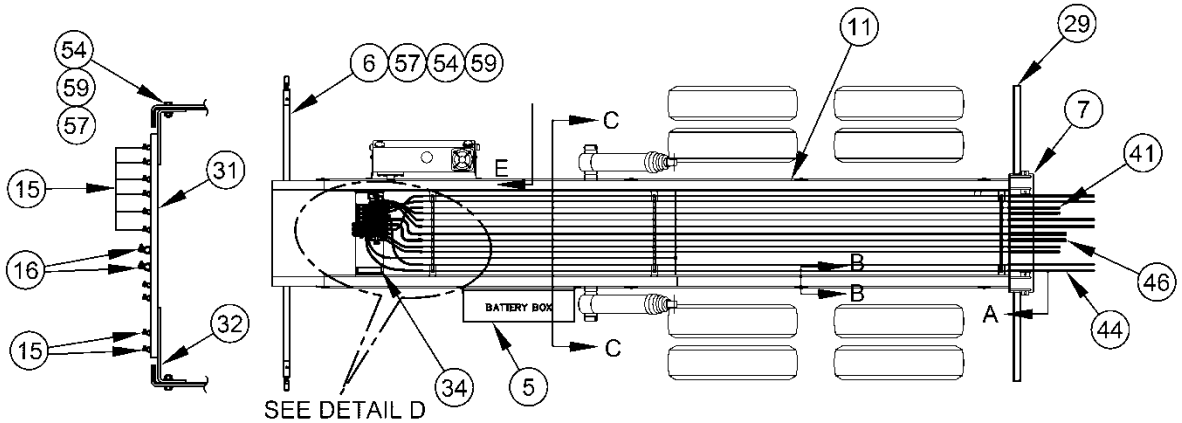
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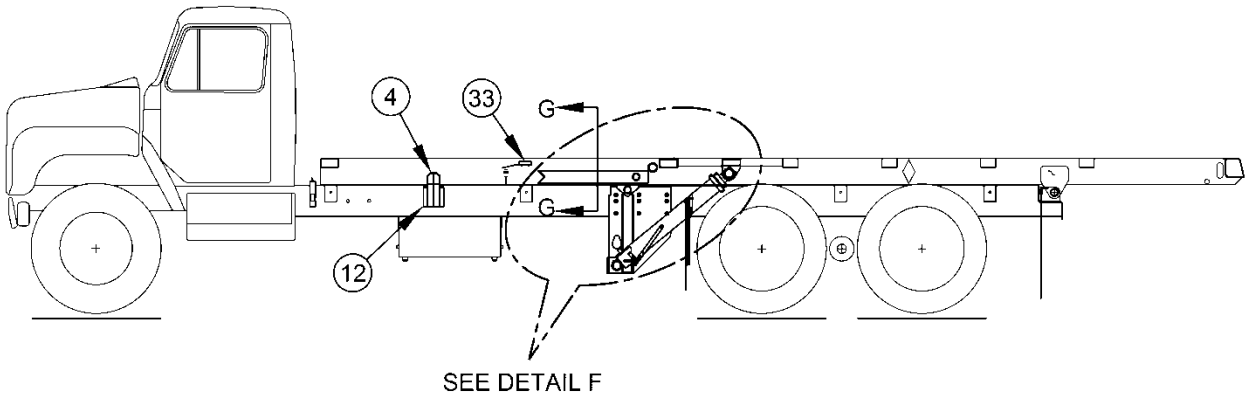
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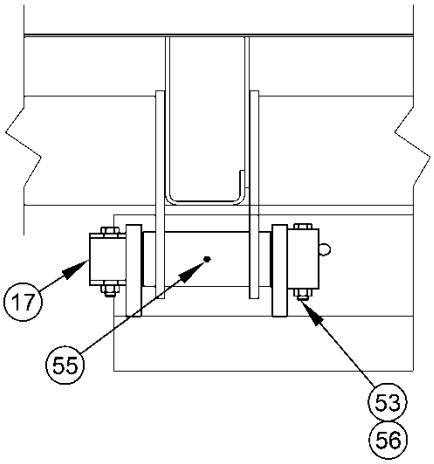
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MOUNTING INSTRUCTIONS

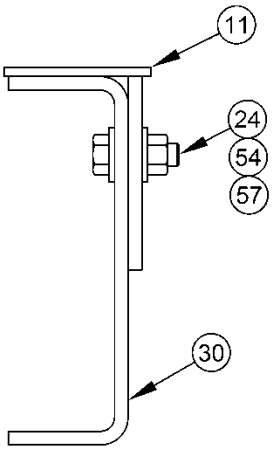
272-8745-033, 272-8745-038







VIEW A A



VIEW B B

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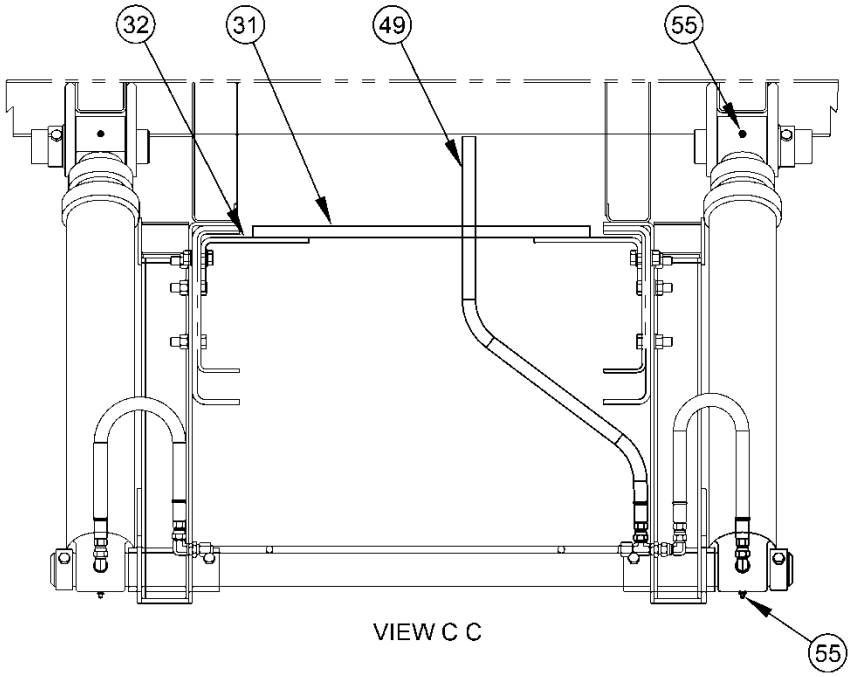
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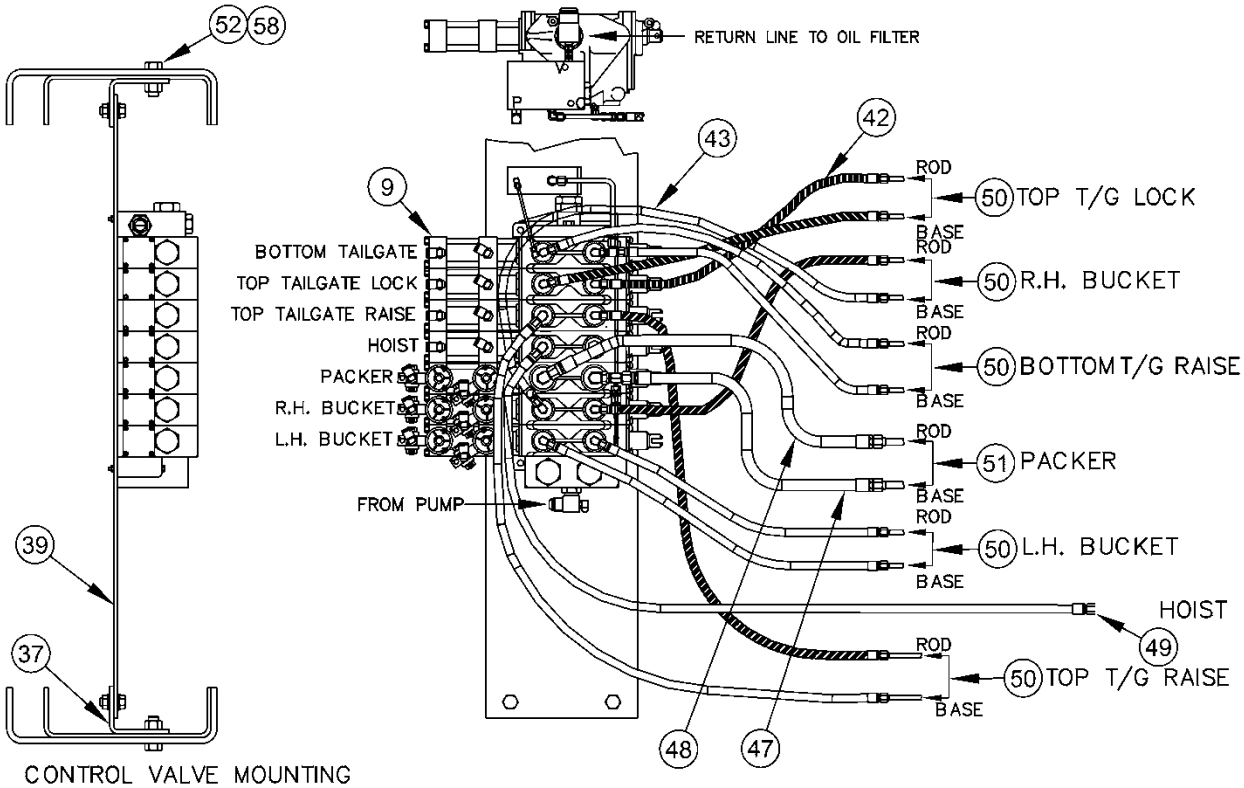
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MOUNTING INSTRUCTIONS

272-8745-033, 272-8745-038



VIEW C C



CONTROL VALVE MOUNTING

DETAIL D

SHEET 2 OF 3

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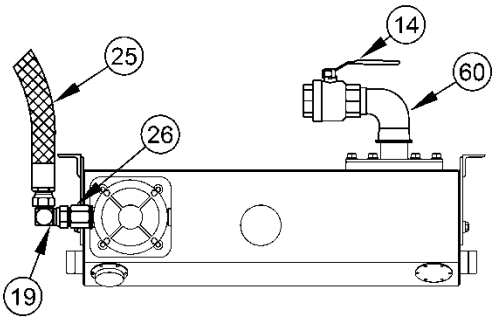
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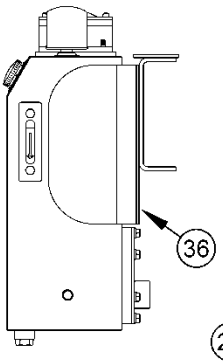
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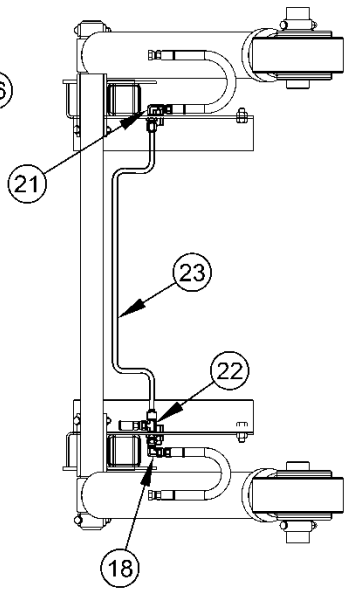
MOUNTING INSTRUCTIONS

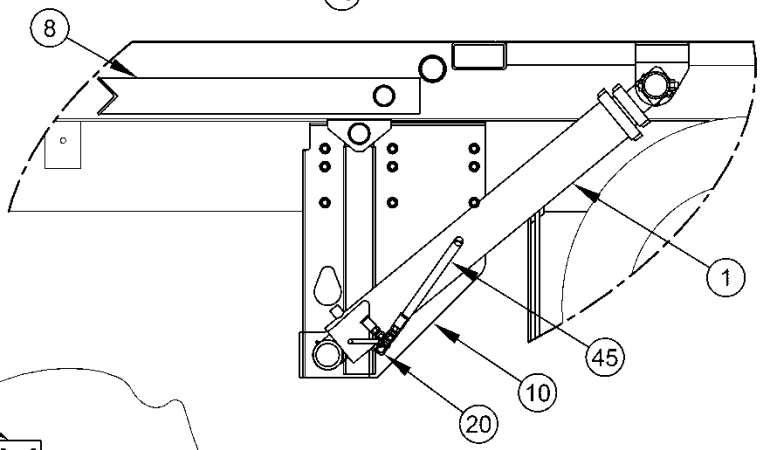
272-8745-033, 272-8745-038



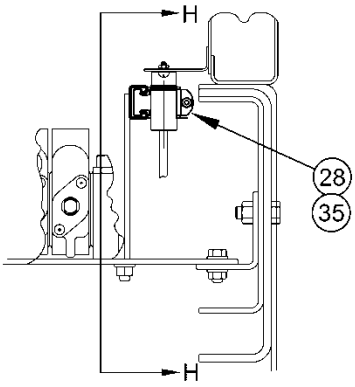


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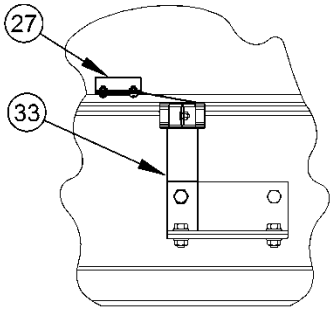




DETAIL F



VIEW G G



VIEW H H

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MOUNTING INSTRUCTIONS

272-8745-033, 272-8745-038

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-8745-033	INSTRUCTIONS, Mtg., 33 Yd.	A	REF
-	272-8745-038	INSTRUCTIONS, Mtg., 38 Yd.	B	REF
1	001-6953	CYLINDER, Hoist (See Section 5)	-	2
4	064-3263	WELDMENT, Body Guide	-	2
5	372-5140-003	KIT, Mount, 3-Battery Box (See Pg. 2039)	-	REF
6	211-7159	BRACKET, Bucket Controls	-	2
7	237-2943	FRAME, Rear Hinge	-	1
8	177-3987	INSTALLATION, Body Prop (Item Welded)	-	1
9	272-7412	ASSEMBLY, Valve, 7 Section (See Section 4)	-	1
10	272-8238	KIT, Saddle, Hoist (See Pg. 2045)	-	1
11	015-2785-200	PAD, Mtg., 200”	-	2
12	015-2786	SPACER, Body Guide, 3/8”	-	2
14	031-2616	VALVE, Shut Off, Suction Line, 2"	-	1
15	036-1474-004	ASSEMBLY, Clamp, Hydraulic Tubing, 1/2”	-	40
16	036-1474-006	ASSEMBLY, Clamp, Tubing, Hydraulic, 3/4’’	-	8
17	048-5678	PIN, Body Hinge, 2” Dia.	-	2
18	054-2988-006	ELBOW, Male to Female Swivel, 90°, 37° Flare, Swivel Tube 3/4”-16 x 1/2", #8	-	1
19	054-2988-010	ELBOW, Swivel, 90°, 1-5/16"-12 x 1", #16	-	1
20	054-3340-006	ELBOW, Male, 90°, Tube to Str. Thd., 3/4"-16 x 1/2", #8	-	2
21	054-3533-006	ELBOW, Union, Bulkhead, Tube to Tube, 3/4"-16 x 1/2", #8	-	1
22	054-7605-008	TEE, Male, Bulkhead, 37° Flare, SAE, 3/4"-16 x 1/2", #8	-	1
23	054-8788	TUBE, Body Lift, 1/2"	-	1
24	055-1391-007	WASHER, Steel, Hardened, 5/8" x 0.121” Thickness, Zinc, Plated	-	24
25	057-1979-070	HOSE, 1” Female Swivel to 1-5/16”-12 Female, SAE, 70”	-	1
26	058-3205-026	REDUCER, Str. Thd., SAE, 1-7/8”-12 x 1-1/2" to 37° JIC 1-5/16”-12 x 1”	-	1
27	096-0493	ASSEMBLY, Striker (See Pg. 2045)	-	1
28	108-7010	SWITCH, Proximity, Styracast-Sinking, Normally Open	-	REF
29	177-2303	SUPPORT, Mudflap, Bracket, 2” x 2” x 1/4" Angle, SS	-	2
30	177-2428	SUPPORT, Bar, Wear, 3/8” HRS	-	8
31	207-2938-012	CHANNEL, Hydraulic, Tube Clamp, 25”	-	4
32	211-4121	BRACKET, Tube, Mount, 3/8”	-	8
33	211-9420	BRACKET, Proximity Switch	-	1
34	211-5759	BRACKET, Mtg., Air Valves, WMS, 10 Ga. HRS	-	1
35	036-1474-009	ASSEMBLY, Clamp, Hydraulic Tubing, 1-1/4”	-	1
36	211-7553	BRACKET, Tank, Mtg. 2 x 2 x 1/4" Angle	-	2
37	211-8913	BRACKET, Valve, 1/4" HRS	-	2
39	211-8914	BRACKET, Valve, Mtg. 1/4" HRS	-	1
41	QC3-EFEF-028	ASSEMBLY, Hose, 1/2", 37° JIC Male to Female, Swivel, 28”	-	4
42	QC3-EFFF-026	ASSEMBLY, Hose, 1/2", 37° JIC Male to Female, Swivel, 26”	-	8
43	QC3-EFFF-044	ASSEMBLY, Hose, 1/2", 37° JIC Male to Female, Swivel, 44”	-	3
44	QC3-EFFF-050	ASSEMBLY, Hose, 1/2", 37° JIC Male to Female, Swivel, 50”	-	6
45	QC3-FFFF-026	ASSEMBLY, Hose, 1/2", 37° JIC Female Swivel, 26”	-	2

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MOUNTING INSTRUCTIONS

272-8745-033, 272-8745-038

ITEM	PART NO.	DESCRIPTION	EFF	QTY
46	QC5-EHEH-028	HOSE, 3/4", 37° JIC Male Swivel, 28”	-	2
47	QC5-EHFH-020	HOSE, 3/4", Release, 37° JIC Male to Female Swivel, 20”	-	1
48	QC5-EHFH-024	HOSE, 3/4", Release, 37° JIC Male to Female Swivel, 24”	-	1
49	QD3-FFFF-110	ASSEMBLY, Hose, 1/2", 37° JIC Female Swivel, 110”	-	1
50	TAS-C191	TUBE, Chassis, 1/2"	-	10
51	TAS-E191	TUBE, Chassis, 3/4"	-	2
52	FSP071124	HHCS, 1/2"-13 x 1-1/2”, Gr. 5, Plated	-	4
53	FSP081146	HHCS, 1/2" x 3-3/4”, Gr. 8, Plated	-	4
54	FSP081330	HHCS, 5/8”-11 x 2”, Gr. 8, Plated	-	26
55	FS190400	FITTING, Grease, Str., 1/8” NPT	-	6
56	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	A	10
-56a	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	B	8
57	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	A	24
-57a	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	B	26
58	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	8
59	FSP511300	WASHER, Flat, 5/8” Std., Plated	-	10
60	FS823000	ELBOW, Street, 90°, Malleable, #150 and #300, 2" NPT	-	1

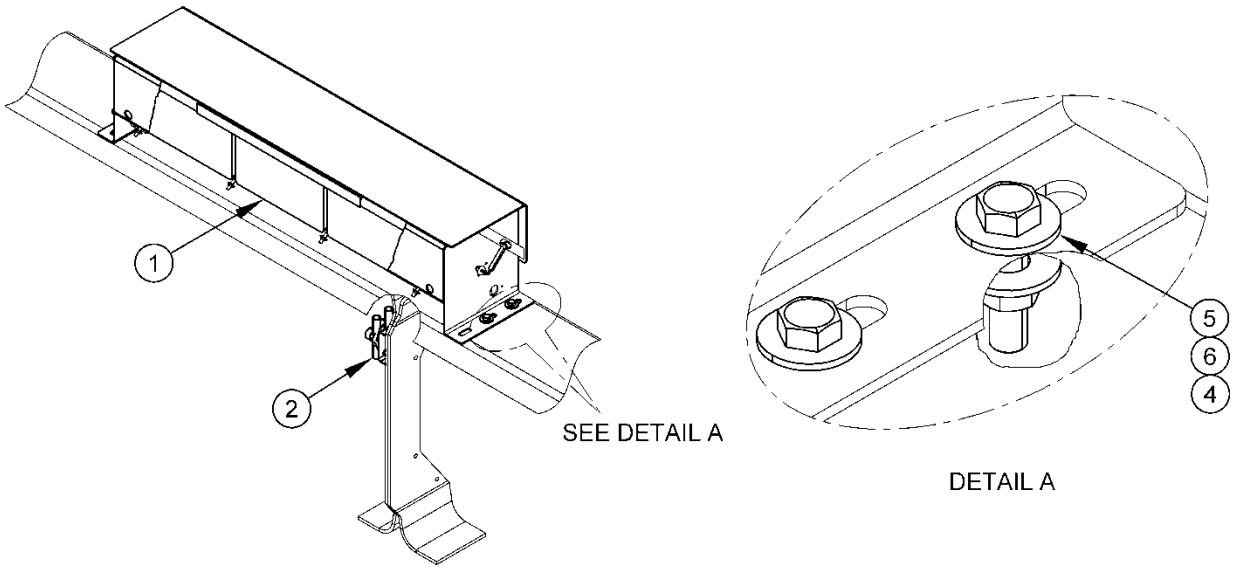
Note: 1) Item 2 is Welded.
2) Items 3, 13, 38 and 40 are Not Available.

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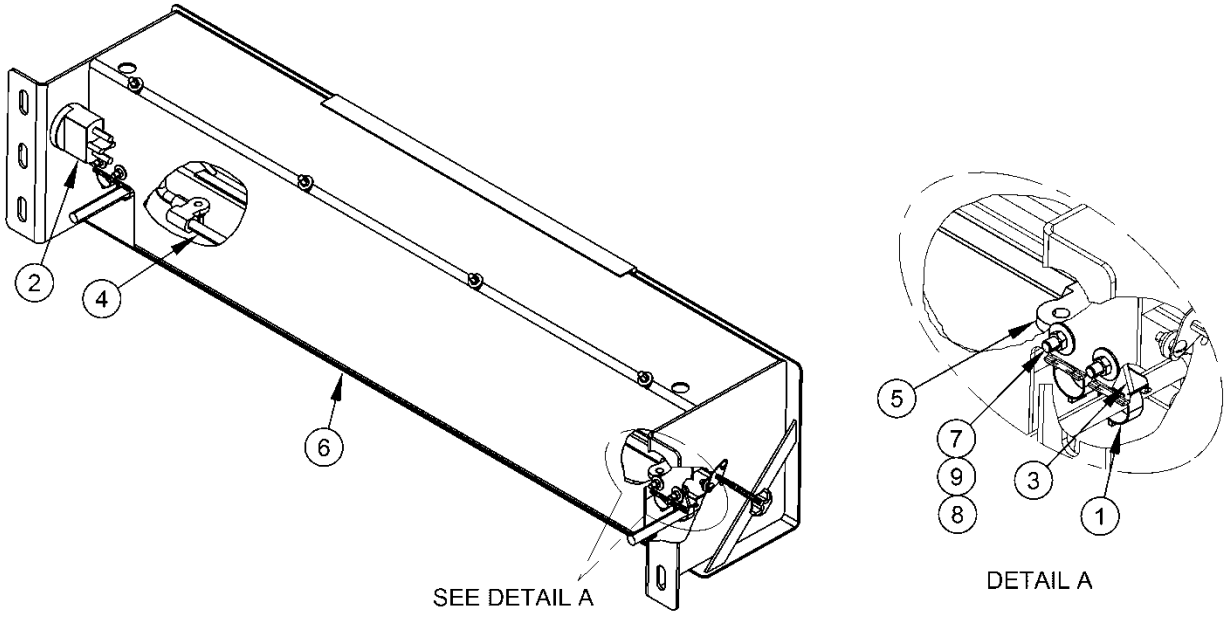
3-BATTERY BOX MOUNT KIT

372-5140-003



3-BATTERY BOX ASSEMBLY

151-4683-003



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3-BATTERY BOX MOUNT KIT

372-5140-003

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5140-003	KIT, Mount, 3-Battery Box	-	REF
1	151-4683-003	ASSEMBLY, 3-Battery Box (See Pg. 2039)	-	1
2	372-5141	KIT, Stud, Battery, Isolated (See Pg. 2043)	-	1
-3	701-8038	SCHEMATIC, Battery, Connection (See SM 10)	-	1
4	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	4
5	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	8
6	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	4

3-BATTERY BOX ASSEMBLY

151-4683-003

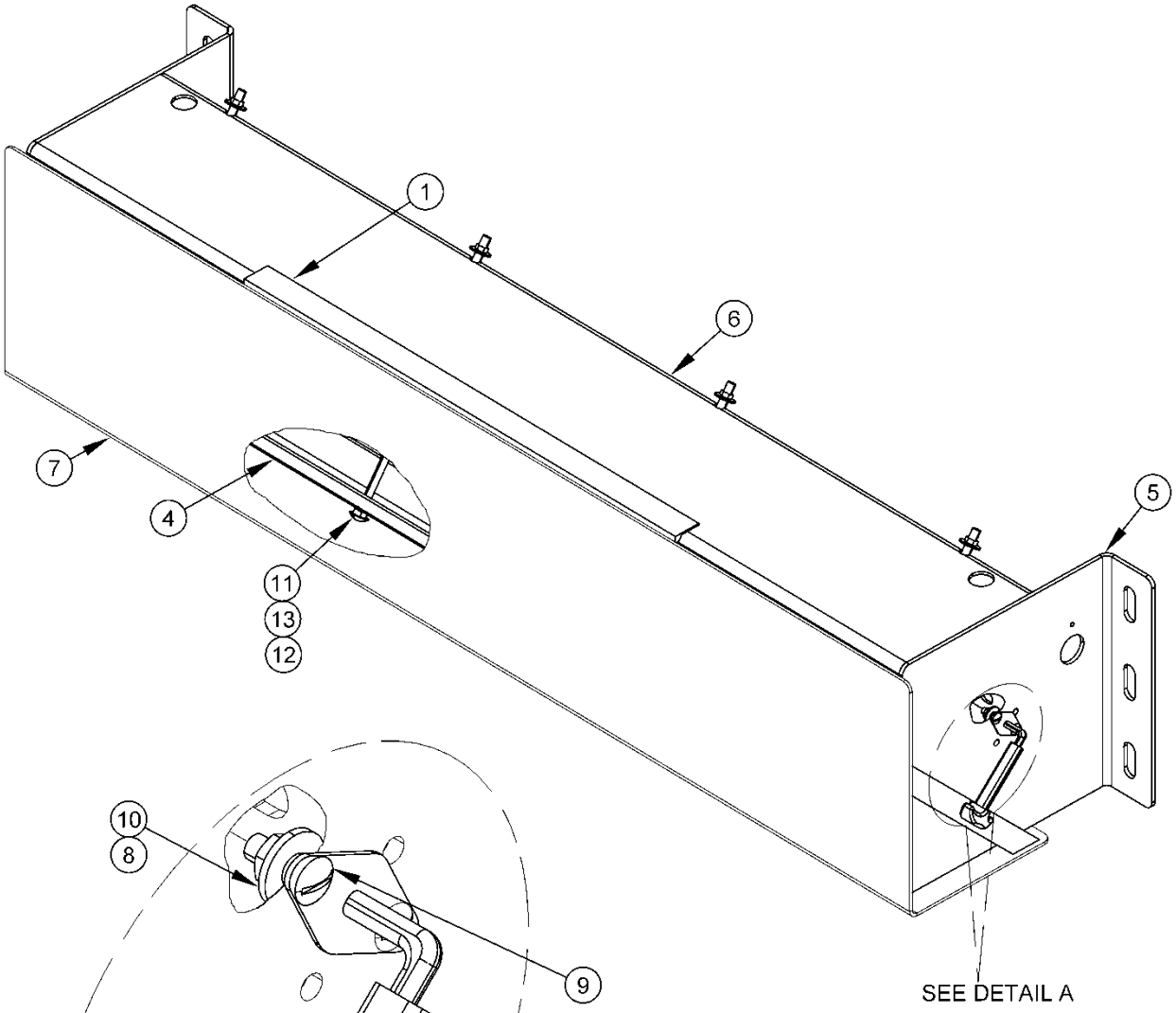
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	151-4683-003	ASSEMBLY, 3-Battery Box	-	REF
1	036-1925	STRAP, Tie, Heavy Duty, 250 Lbs	-	4
2	108-8123	DISCONNECT, Battery	-	1
3	108-8412	MOUNT, Saddle, Tie Strap	-	4
4	108-8413-103	CABLE, Battery, Positive	-	1
5	108-8413-203	CABLE, Battery, Negative	-	1
6	151-4682-003	WELDMENT, 3-Battery Box (See Pg. 2041)	-	1
7	FSP070820	HHCS, 5/16”-18 x 1”, Gr. 5, Plated	-	4
8	FSP230800	NUT, Lock, 5/16”-18, Gr. 5, Plated	-	4
9	FSP520800	WASHER, Flat, 5/16”, SAE, Plain	-	4

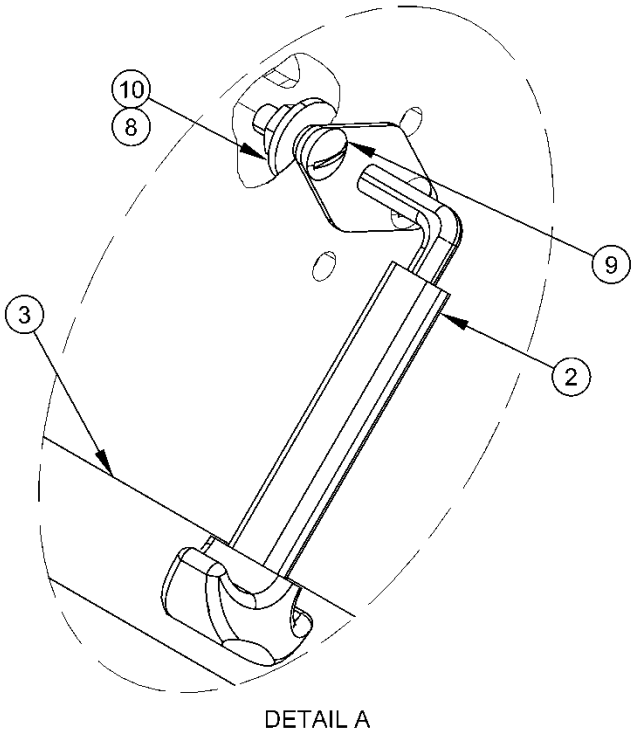
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3-BATTERY BOX WELDMENT

151-4682-003





DETAIL A

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3-BATTERY BOX WELDMENT

151-4682-003

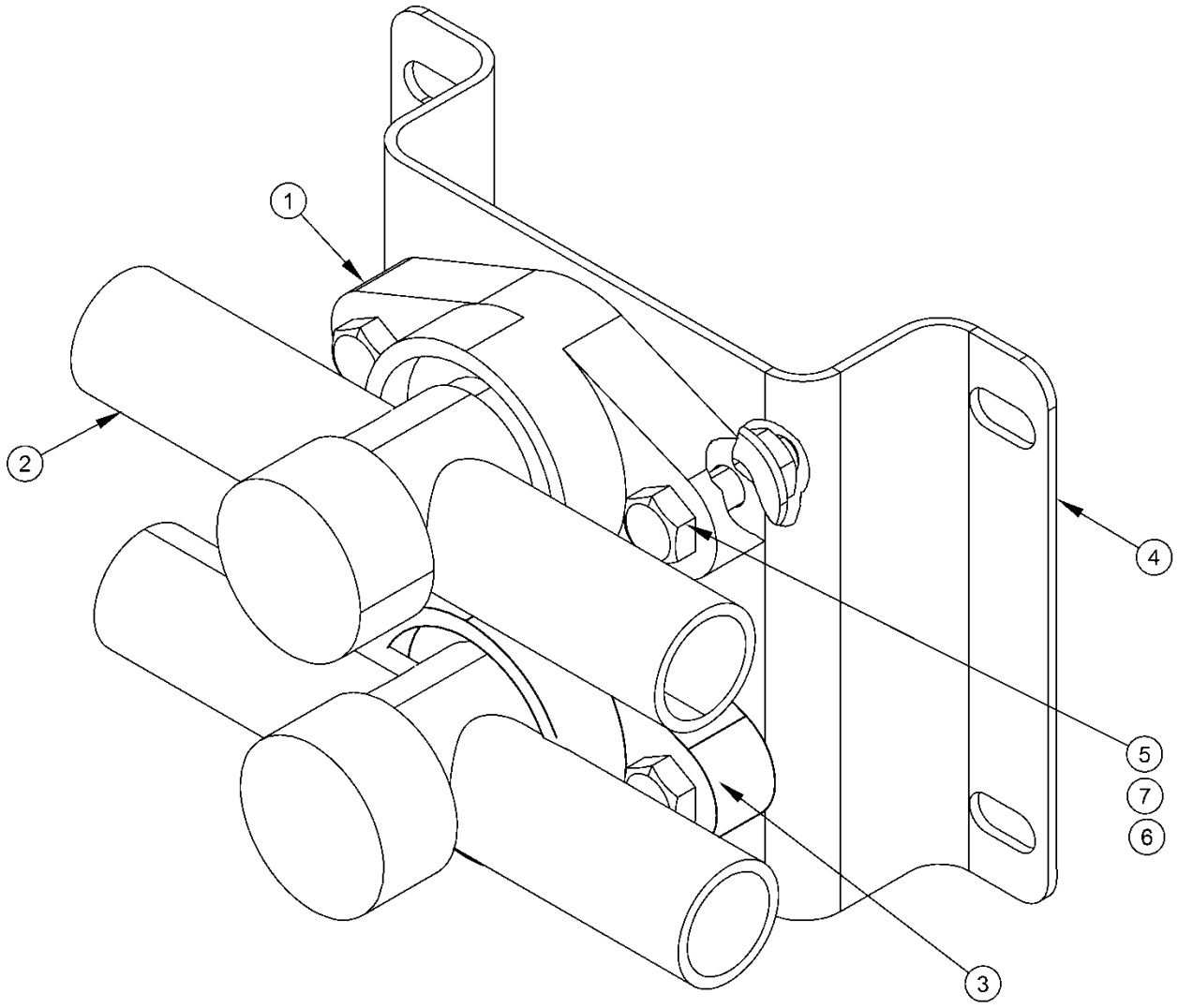
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	151-4682-003	WELDMENT, 3-Battery Box	-	REF
1	005-4115	HINGE, Battery Box	-	1
2	053-2016	LATCH, Battery Box	-	2
3	112-9957	COVER, Brace, Battery Box	-	2
4	112-9959	ANGLE, Battery, Hold Down	-	1
5	113-2731	SHEET, Battery Box, Side	-	2
6	113-6410-003	BASE, Battery Box	-	1
7	113-6411-003	COVER, Battery Box	-	1
8	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	4
9	FS410715	SCREW, 1/4” x 3/4”	-	4
10	FS510700	WASHER, Flat, 1/4”, Std., Plain	-	4
11	FSP020899	BOLT, Carriage, 5/16” x 12	-	4
12	FSP230800	NUT, Lock, 5/16”-18, Gr. 5, Plated	-	4
13	FSP520800	WASHER, Flat, 5/16”, SAE, Plain	-	4

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ISOLATED BATTERY STUD KIT

372-5141



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ISOLATED BATTERY STUD KIT

372-5141

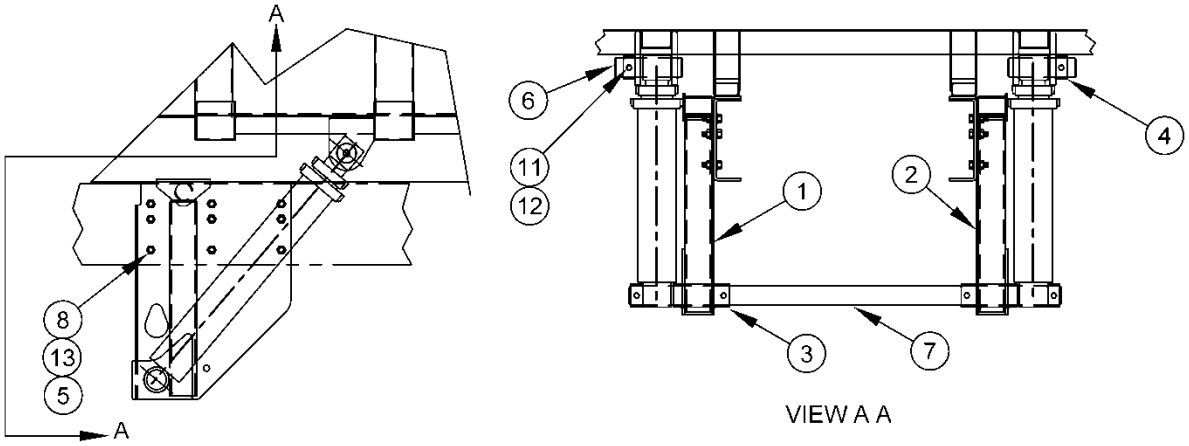
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5141	KIT, Stud, Battery, Isolated	-	REF
1	108-8414-001	STUD, Battery Isolated, Red	-	1
2	108-8414-002	COVER, Stud, Battery, Isolated	-	2
3	108-8414-003	STUD, Battery, Isolated, Black	-	1
4	311-4572	BRACKET, Battery, Stud, Mounting	-	1
5	FSP070720	HHCS, 1/4''-20 x 1”, Gr. 5, Plated	-	4
6	FSP230700	NUT, Lock, 1/4”-20, Gr. 5, Plated	-	4
7	FSP510700	WASHER, Flat, 1/4" Std., Plated	-	4

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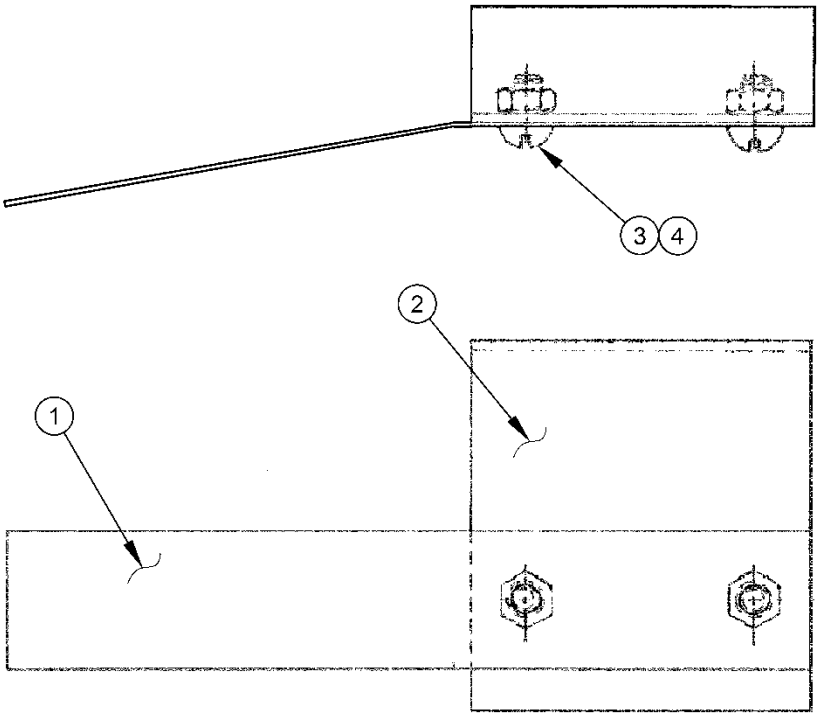
HOIST SADDLE KIT

272-8238



STRIKER ASSEMBLY

096-0493



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HOIST SADDLE KIT

272-8238

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-8238	KIT, Saddle, Hoist	-	REF
1	311-0153-00L	BRACKET, Saddle, Hoist, SS	-	1
2	311-0153-00R	BRACKET, Saddle, Hoist, CS	-	1
3	003-5028	BEARING, Shaft, Hoist Cylinder	-	2
4	040-2481	PIN, Hoist Cylinder, Collar	-	4
5	047-1796-003	BOLT, Body, Bound, 5/8”-18 x 2-1/4”, Gr. 5	-	18
6	048-5833	PIN, Hoist Cylinder, Upper	-	2
7	048-7108	PIN, Hoist Cylinder, Lower	-	1
8	055-1391-007	WASHER, Steel, Hardened, 5/8" x 1/8” Thickness, Zinc, Plated	-	36
11	FSP071146	HHCS, 1/2"-13 x 3-3/4", Gr. 5, Plated	-	6
12	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	6
13	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	-	18

Note: 1) Item 9 is Welded.
2) Item 10 is Installation Drawing.

STRIKER ASSEMBLY

096-0493

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	096-0493	ASSEMBLY, Striker	-	REF
1	096-0494	STRIKER, Spring Board	-	1
2	211-4332	BRACKET, Striker, 12 Ga. HRS	-	1
3	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	2
4	FS420711	SCREW, Mach., 1/4”-20 x 1/2", Rd. Hd.	-	2

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MOUNTING INSTRUCTIONS

272-8745-038

To Be Supplied

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MOUNTING INSTRUCTIONS

272-8745-038

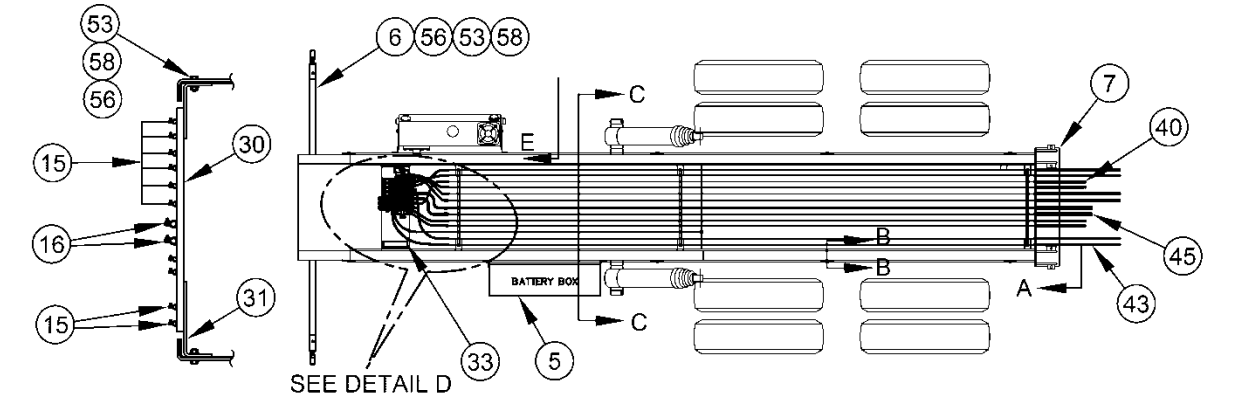
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-8745-038	INSTRUCTION, Mtg., 38 Yd.	-	REF

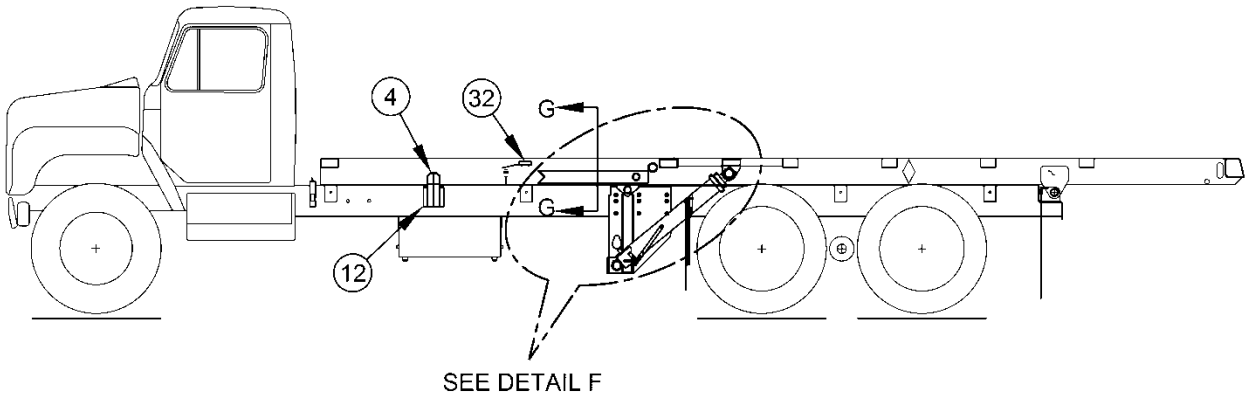
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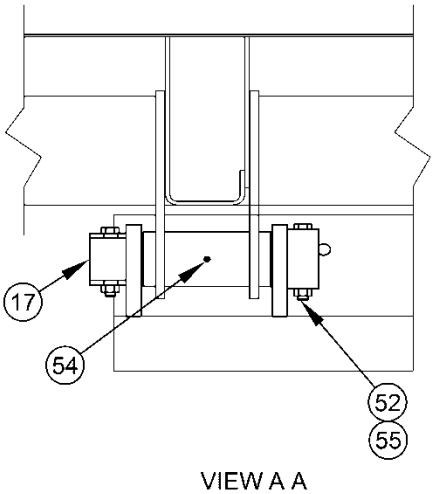
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MOUNTING INSTRUCTIONS

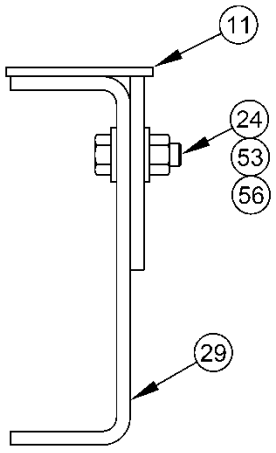
372-2319, 372-3929







VIEW A A



VIEW B B

SHEET 1 OF 3

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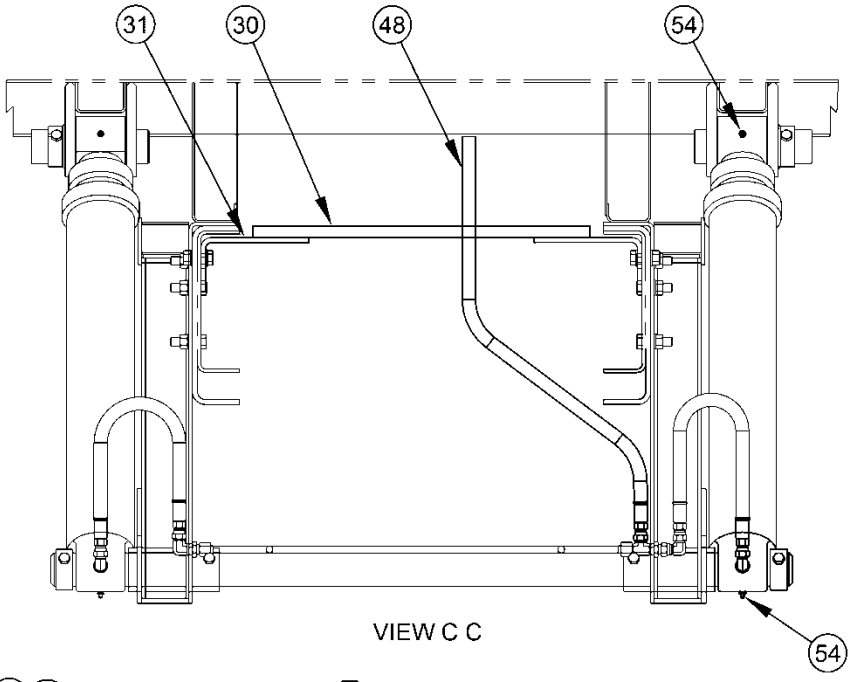
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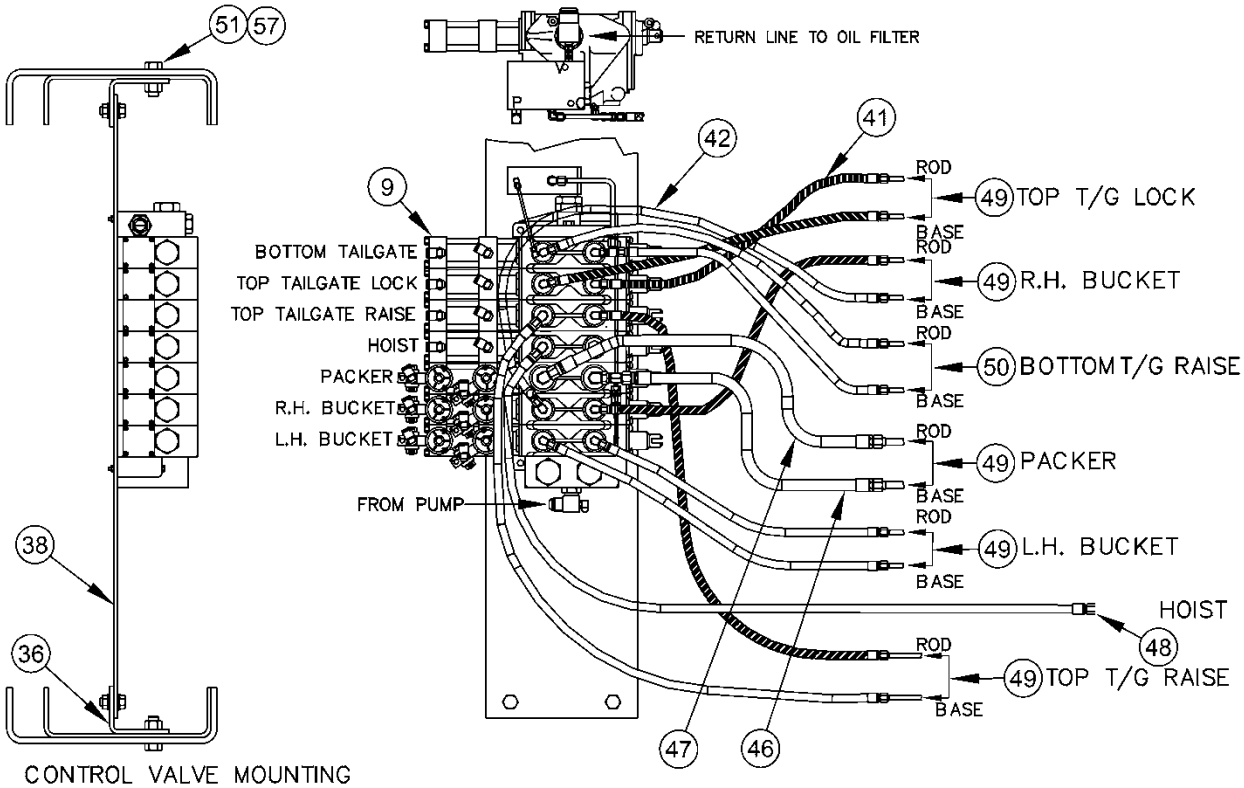
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MOUNTING INSTRUCTIONS

372-2319, 372-3929



VIEW C C



CONTROL VALVE MOUNTING

DETAIL D

SHEET 2 OF 3

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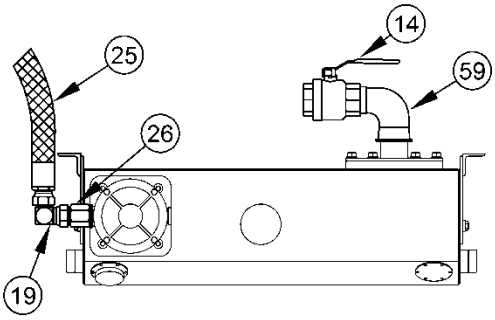
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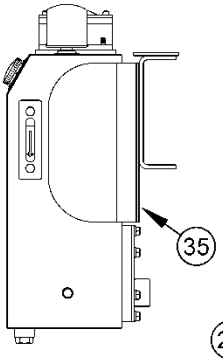
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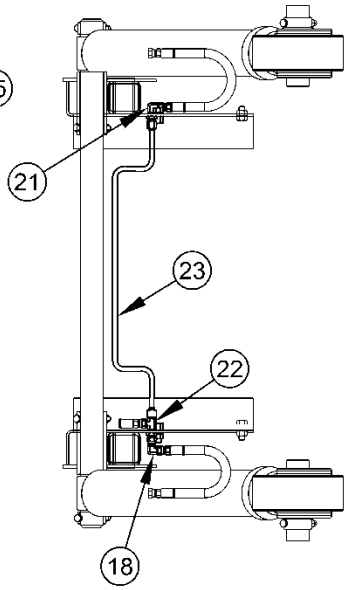
MOUNTING INSTRUCTIONS

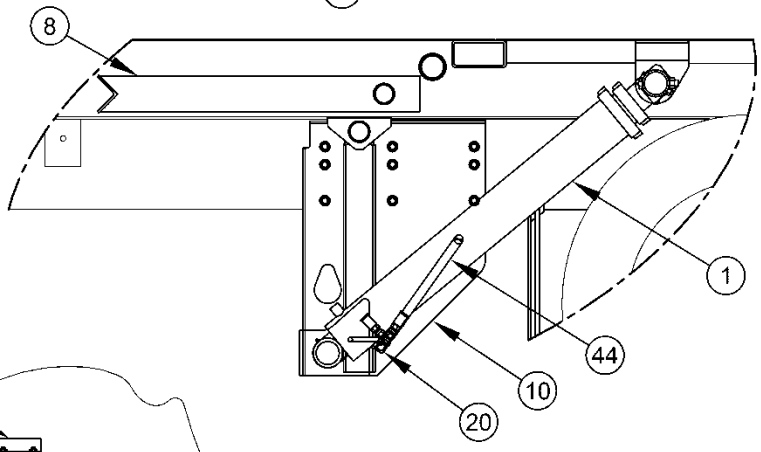
372-2319, 372-3929



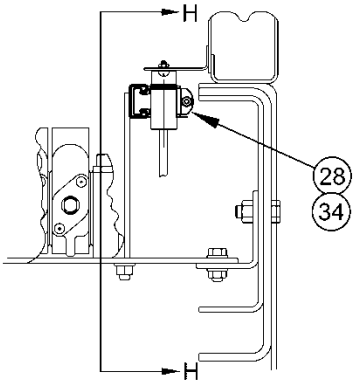


VIEW E E

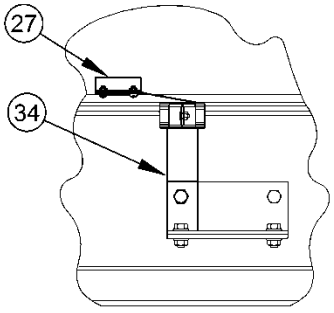




DETAIL F



VIEW G G



VIEW H H

SHEET 3 OF 3

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MOUNTING INSTRUCTIONS

372-2319, 372-3929

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2319	INSTRUCTION, Mtg., 38 Yd.	A	REF
-	372-3929	INSTRUCTION, Mtg., WM, 33 Yd.	B	REF
1	001-6425	ASSEMBLY, Hoist Cylinder (See Section 5)	-	2
4	064-3263	WELDMENT, Body Guide	-	2
5	372-5140-003	KIT, Mount, 3-Battery Box (See Pg. 2039)	-	REF
6	211-7159	BRACKET, Bucket Controls	-	2
7	237-2943	FRAME, Rear Hinge	-	1
8	177-3987	INSTALLATION, Body Prop (Item Welded)	-	1
9	272-7412	ASSEMBLY, Valve, 7 Section (See Section 4)	-	1
10	272-8238	KIT, Saddle, Hoist (See Pg. 2045)	-	1
11	015-2785-200	PAD, Mtg., 200”	-	2
12	015-2786	SPACER, Body Guide, 3/8”	-	2
14	031-2616	VALVE, Shut Off, Suction Line, 2"	-	1
15	036-1474-004	ASSEMBLY, Clamp, Hydraulic Tubing, 1/2”	-	40
16	036-1474-006	ASSEMBLY, Clamp, Hydraulic Tubing, 3/4”	-	8
17	048-5678	PIN, Body Hinge, 2” Dia.	-	2
18	054-2988-006	ELBOW, Male to Female Swivel, 90°, 37° Flare, Swivel Tube 3/4”-16 x 1/2", #8	-	1
19	054-2988-010	ELBOW, Swivel, 90°, 1-5/16"-12 x 1", #16	-	1
20	054-3340-006	ELBOW, Male, 90°, Tube to Str. Thd. 3/4"-16 x 1/2", #8	-	2
21	054-3533-006	ELBOW, Union, Bulkhead, Tube to Tube, 3/4"-16 x 1/2", #8	-	1
22	054-7605-008	TEE, Male, Bulkhead, 37° Flare, SAE, 3/4"-16 x 1/2", #8	-	1
23	054-8788-00P	TUBE, Body, Lift, 1/2" OD x 0.049” Wall Tubing	-	1
24	055-1391-007	WASHER, Steel, Hardened, 5/8" x 1/8” Thickness, Zinc, Plated	-	24
25	057-1979-070	HOSE, 1” Female Swivel to 1-5/16”-12 Female, SAE, 70”	-	1
26	058-3205-026	REDUCER, Str. Thd., SAE, 1-7/8”-12 x 1-1/2" to 37° JIC 1-5/16”-12 x 1”	-	1
27	096-0493	ASSEMBLY, Striker (See Pg. 2045)	-	1
28	108-7010	SWITCH, Proximity, Styracast-Sinking, Normally Open	-	REF
29	177-2428	SUPPORT, Bar, Wear, 3/8” HRS	-	8
30	207-2938-012	CHANNEL, Hydraulic, Tube Clamp, 25”	-	4
31	211-4121	BRACKET, Tube, Mount, 3/8”	-	8
32	211-9420	BRACKET, Proximity Switch	-	1
33	211-5759	BRACKET, Mtg., Air Valves, WMS, 10 Ga. HRS	-	1
34	036-1474-009	ASSEMBLY, Clamp, Hydraulic Tubing, 1-1/4”	-	1
35	211-7553	BRACKET, Tank, Mtg. 2 x 2 x 1/4 Angle	-	2
36	211-8913	BRACKET, Valve, 1/4" HRS	-	2
38	211-8914	BRACKET, Valve, Mtg. 1/4" HRS	-	1
40	QT3-EFEF-028	HOSE, Container, 1/2", 37° JIC Male to Female, Swivel, 28”	-	4
41	QT3-EFFF-026	HOSE, 1/2", 37° JIC Male to Female, Swivel, 26”	-	8
42	QT3-EFFF-044	HOSE, Tailgate, 1/2", 37° JIC Male to Female, Swivel, 44”	-	3
43	QT3-EFFF-150	HOSE, Tailgate, 1/2", 37° JIC Male to Female, Swivel, 150”	-	6
44	QT3-FFFF-026	HOSE, Pressure, Hoist Cylinder, 1/2", 37° JIC Female Swivel, 26”	-	2
45	QT5-EHEH-028	HOSE, Packer, 3/4", 37° JIC Male Swivel, 28”	-	2

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MOUNTING INSTRUCTIONS

372-2319, 372-3929

ITEM	PART NO.	DESCRIPTION	EFF	QTY
46	QT5-EHFH-020	HOSE, 3/4”, 37° JIC Male to Female Swivel, 20”	-	1
47	QT5-EHFH-024	HOSE, 3/4”, 37° JIC Male to Female Swivel, 24”	-	1
48	QT3-FFFF-110	HOSE, Pressure, 1/2", 37° JIC Female, Swivel, 110”	-	1
49	PAM-C191	TUBE, 1/2", Plated	-	10
50	PAM-E191	TUBE, 3/4", Plated	-	2
51	FSP071124	HHCS, 1/2"-13 x 1-1/2”, Gr. 5, Plated	-	4
52	FSP081146	HHCS, 1/2" x 3-3/4”, Gr. 8, Plated	-	4
53	FSP081330	HHCS, 5/8”-11 x 2”, Gr. 8, Plated	-	26
54	FS190400	FITTING, Grease, Str., 1/8” NPT	-	6
55	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	8
56	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	-	26
57	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	8
58	FSP511300	WASHER, Flat, 5/8” Std., Plated	A	10
-58a	FSP511300	WASHER, Flat, 5/8” Std., Plated	B	26
59	FS823000	ELBOW, Street, 90°, Malleable, #150 and #300, 2" NPT	-	1

Note: 1) Item 2 is Welded.
2) Items 3, 13, 37 and 39 are Not Available.

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BUCKETS

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STANDARD BUCKETS

311-2333-00L, 311-2333-00R

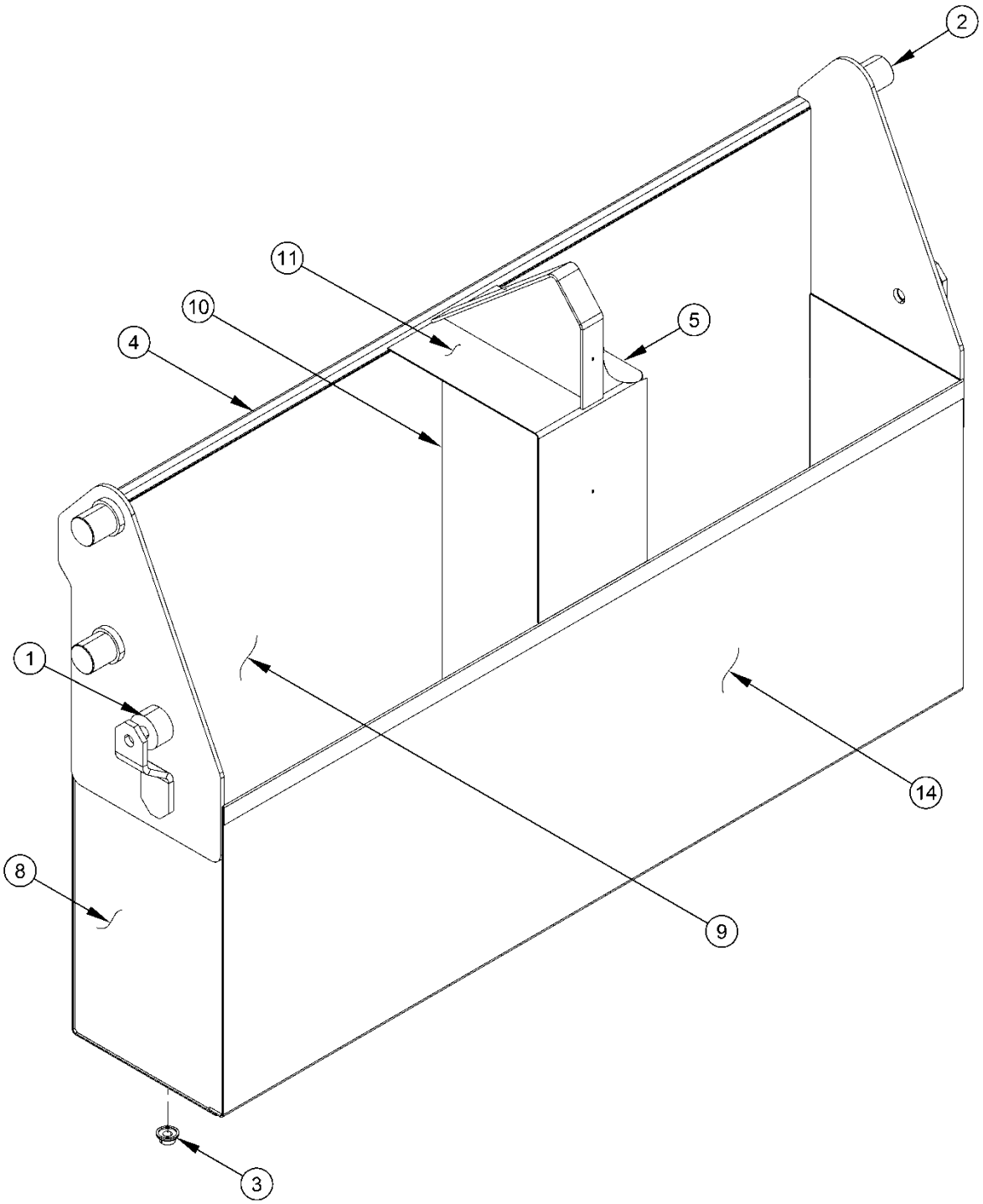
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-2333-00L	BUCKET, Standard, SS	A	REF
-	311-2333-00R	BUCKET, Standard, CS	B	REF
-1	311-2333	BUCKET, Weldment (See Pg. 2061)	-	1

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BUCKET WELDMENT

311-2333



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BUCKET WELDMENT

311-2333

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-2333	BUCKET, Weldment	-	REF
1	003-4503	BOSS, Support, Link Arm, 3” Dia.	-	2
2	048-5816	PIN, Container, 3” Dia.	-	4
3	074-1827-005	FLANGE, Tank, 3/4" NPT	-	2
4	112-8688-002	TUBE, Support, 1-1/2” x 3” x 3/16” Wall	-	1
5	112-8688-003	ANGLE, Divider, #12 Ga.	-	2
8	311-2333-001	BUCKET, Side, #11 Ga.	-	2
9	311-2333-002	CONTAINER, Back, #11 Ga.	-	1
10	311-2333-003	DIVIDER, #12 Ga.	-	1
11	311-2333-004	COVER, Divider, #12 Ga.	-	1
14	311-2333-007	CONTAINER, Front, #11 Ga.	-	1

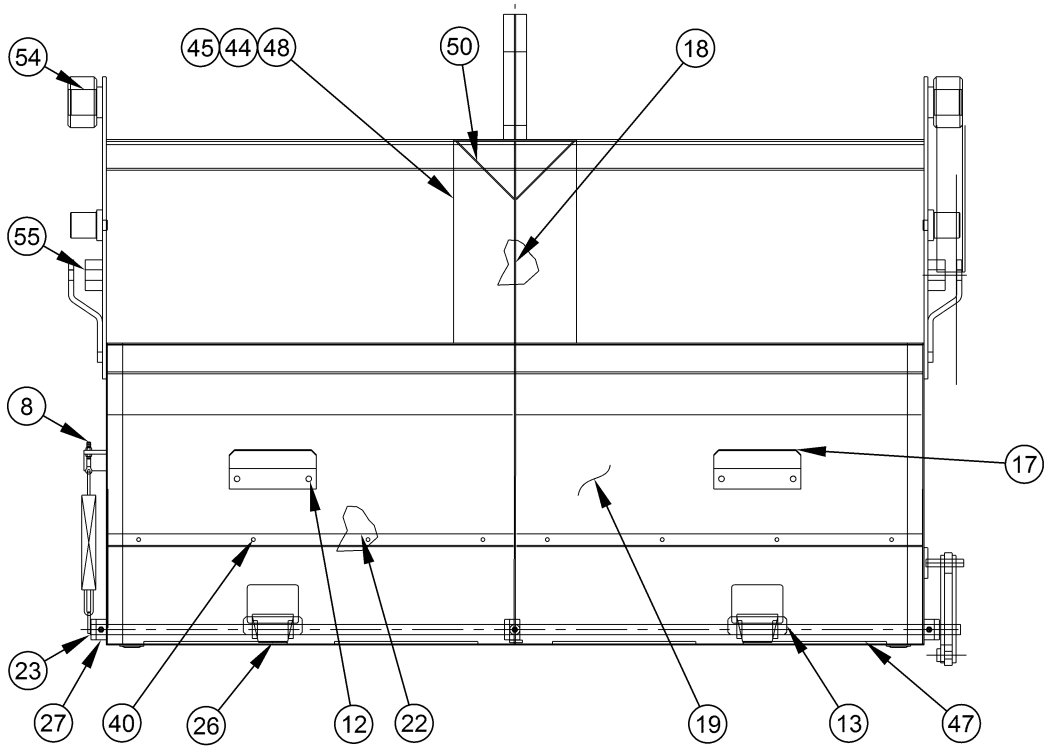
Note: Items 6, 7, 12 and 13 are Welded.

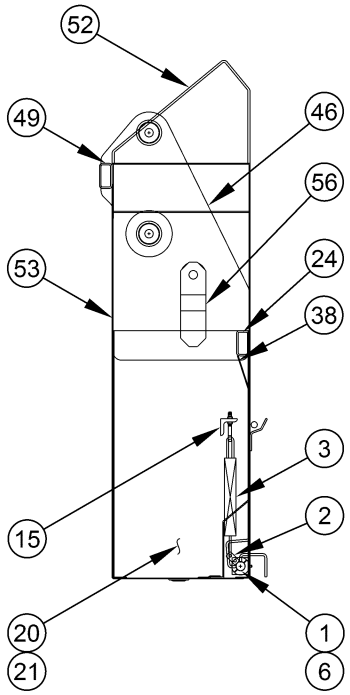
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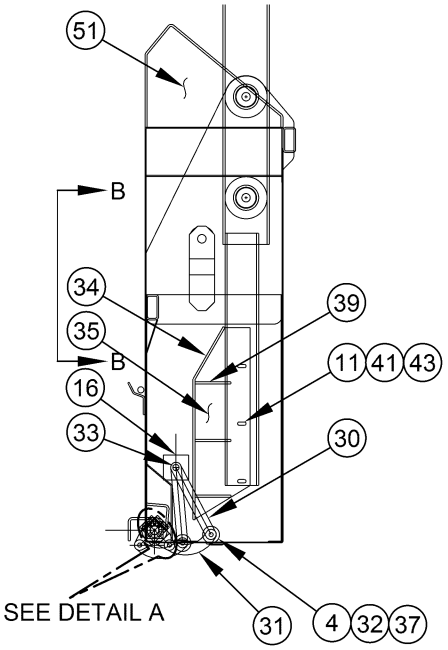
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CART DUMPER BUCKETS

311-0876-00L, 311-0876-00R







SHEET 1 OF 2

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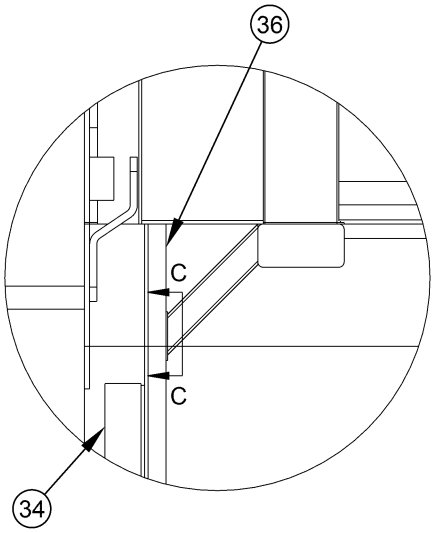
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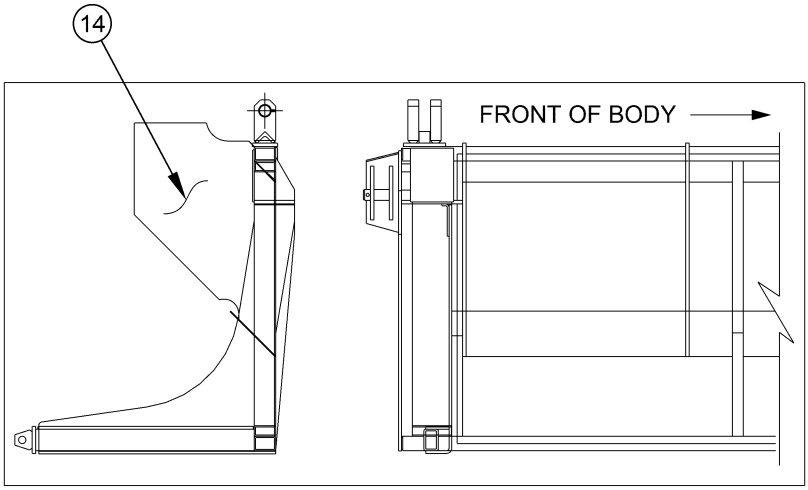
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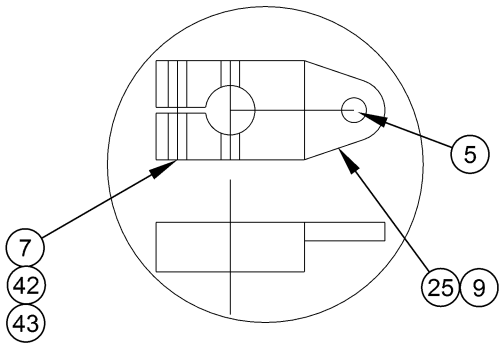
CART DUMPER BUCKETS

311-0876-00L, 311-0876-00R

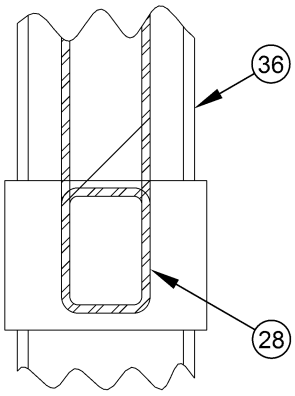


VIEW B-B





DETAIL A



SECTION C-C

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CART DUMPER BUCKETS

311-0876-00L, 311-0876-00R

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-0876-00L	BUCKET, Cart Dumper, SS	A	REF
-	311-0876-00R	BUCKET, Cart Dumper, CS	B	REF
1	003-3568	BEARING, Link Arm, 1”	-	3
2	005-3728	LINK	-	1
3	019-1469	SPRING	-	1
4	040-2058	COLLAR, Lock	-	4
5	040-2061	COLLAR, Lock, 1/2"	-	1
6	040-2070	COLLAR, Lock	-	5
7	047-1749	SCREW, Socket Set, Knurled Cup Point, 5/16”-18 x 1/2"	-	2
8	047-2153	BOLT, Eye, 3/8”	-	1
9	048-3127-006	PIN, Clevis, 1.36" x 1/2" Dia.	-	1
-10	NA	-	-	-
11	055-1391-003	WASHER, Steel, Hardened, 3/8” x 13/16” Thickness, Zinc, Plated	-	11
12	055-1391-005	WASHER, Steel, Hardened, 1/2" x 0.121” Thickness, Zinc, Plated	-	8
13	126-2873	BRACE	-	2
14	126-3780	BRACE, Top Door	-	2
15	311-1458	BRACKET, Spring	-	1
16	311-0876-007	PLATE, Support, Roller	-	1
17	211-7832-007	BRACKET, Latch, Upper	-	2
18	311-0876-001	DIVIDER, Center	-	1
19	311-0876-002	SHEET, Front	-	1
20	311-0876-003	END, Sheet, SS	-	1
21	311-0876-004	END, Sheet, CS	-	1
22	211-7175-005	COVER	-	2
23	211-7175-006	SHAFT, 1”	-	1
24	211-7175-008	TUBE, 1-1/2” x 3”	-	1
25	211-7175-009	LEVER	-	1
26	211-7175-010	LATCH	-	2
27	211-7175-012	BAR, Bearing	-	3
28	311-0876-006	TUBE, Support, Roller	-	1
29	211-7175-015	PLATE, 3” x 3”	-	1
30	211-7175-016	LINK	-	2
31	211-7175-017	LINK, Curved	-	1
32	211-7175-018	ROLLER	-	2
33	211-7175-019	PIN, 3/4" x 3-7/16” Lg.	-	1
34	211-7175-020	GUIDE	-	1
35	211-7175-021	BRACE, Guide	-	1
36	211-7175-022	CHANNEL	-	1
37	211-7175-023	PIN, 3/4" x 3” Lg.	-	1
38	211-7175-024	CLOSURE	-	2
39	211-8911	GUSSET	-	3
40	FS410916	SCREW, Mach., Flat Hd., 3/8” x 13/16"	-	8
41	FS070922	HHCS, 3/8”-16 x 1-1/4”, Gr. 5	-	3
42	FS070934	HHCS, 1/2"-13 x 1”, Gr. 5	-	1
43	FS230900	NUT, Lock, 3/8”-16, Gr. 5	-	12
44	FS231100	NUT, Lock, 1/2”, Gr. 5	-	4
45	FS411120	SCREW, Flat Hd., 1/2" x 1”, Mach.	-	4

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CART DUMPER BUCKETS

311-0876-00L, 311-0876-00R

ITEM	PART NO.	DESCRIPTION	EFF	QTY
46	112-8688-007	BRACKET, Roller	-	2
47	113-0260	BRACKET, Cover, Container	-	4
48	311-0876-005	COVER, Divider	-	1
49	112-8688-002	TUBE, Support, 1-1/ 2” x 3” x 3/16” Wall	-	1
50	112-8688-003	ANGLE, Divider, #12 Ga.	-	2
51	112-8688-008	BRACE, Stop, Container	-	1
52	112-8688-009	STOP, Container	-	1
53	112-8688-013	BACK, Container	-	1
54	048-5816	PIN, Container, 3” Dia.	-	4
55	003-4503	BOSS, Support, Link Arm, 3” Dia.	-	2
56	211-7651	BRACKET, Link Arm	-	2

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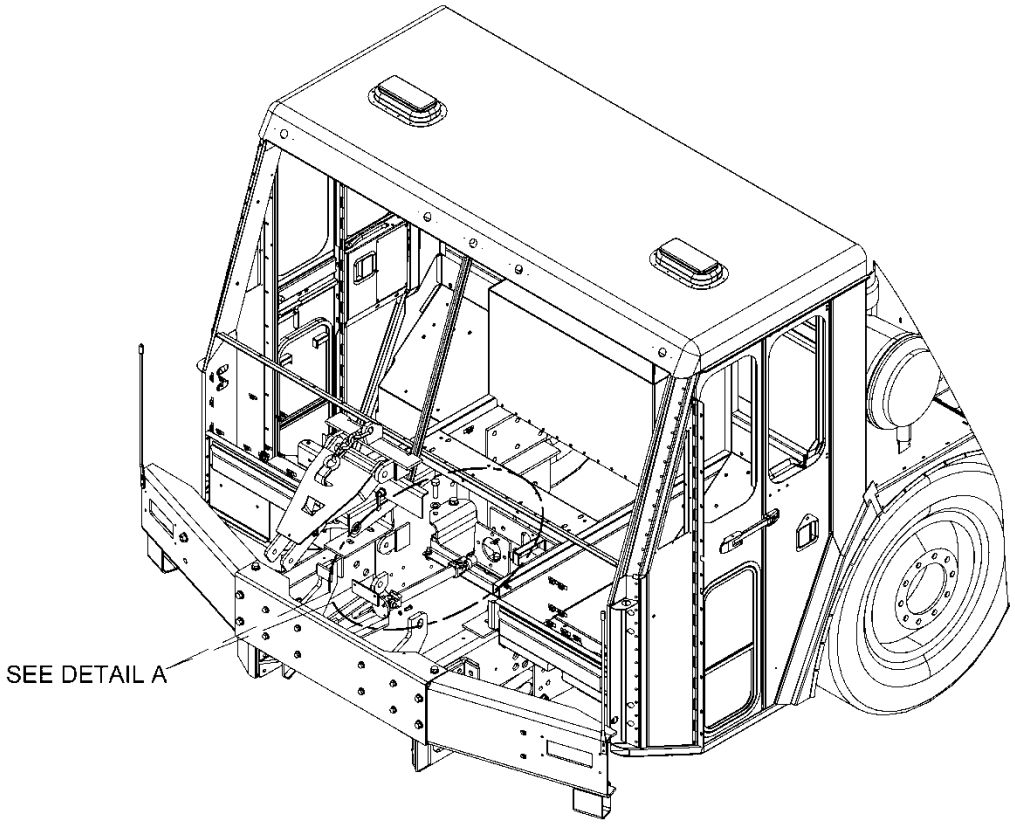
FRONT MOUNT PUMP KITS

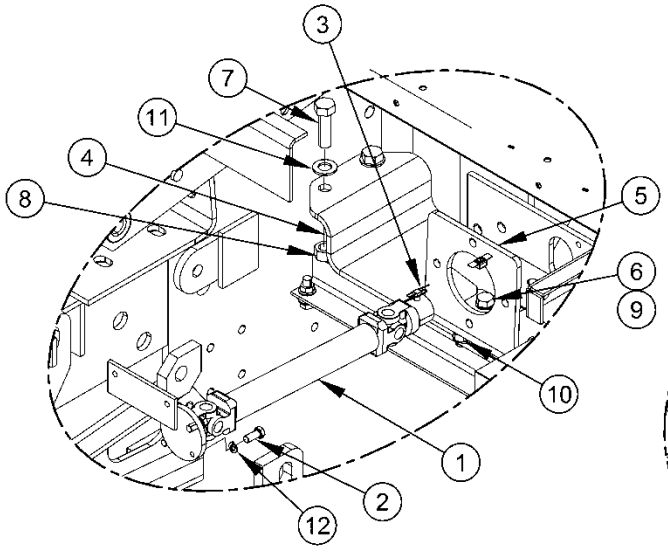
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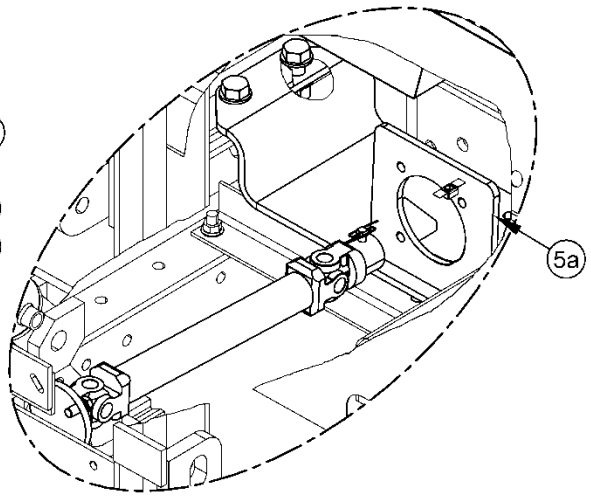
CCC FRONT MOUNT 2 AND 4 BOLT FLANGE PUMP BRACKET KITS

372-5695, 372-5695-001





372-5695-001



372-5695

DETAIL A

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CCC FRONT MOUNT 2 AND 4 BOLT FLANGE PUMP BRACKET KITS

372-5695, 372-5695-001

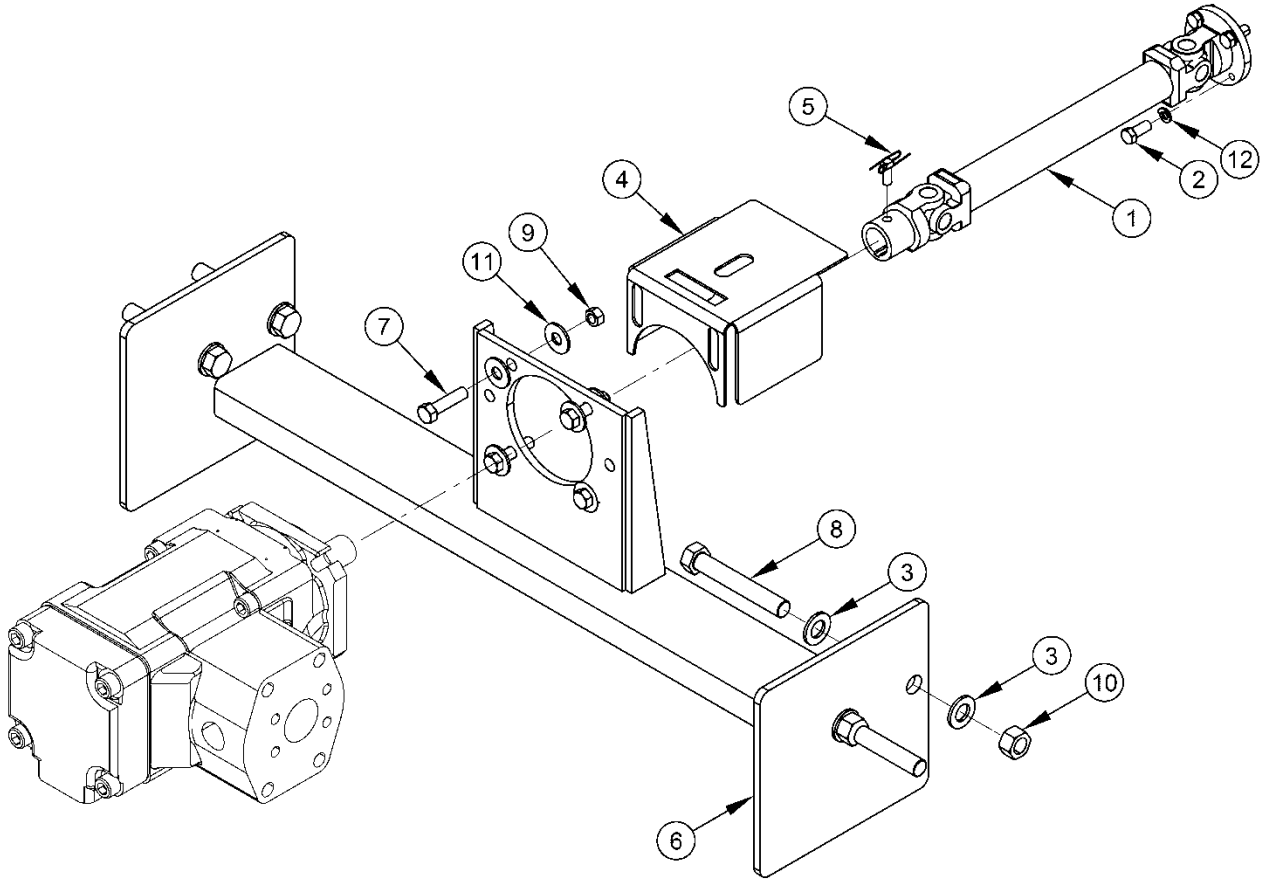
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5695	KIT, Front Mount Pump Bracket, 4 Bolt Flange, CCC	A	REF
-	372-5695-001	KIT, Front Mount Pump Bracket, 2 Bolt Flange, CCC	B	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16"-20 x 1", Gr.8, Yellow, Zinc Dichromate Plated	-	4
3	263-0042	WIRE, Safety, Driveline Lock	-	1
4	311-5121	BRACKET, Pump, Front Mount, CCC	-	1
5	311-5121-004	WELDMENT, Bracket	A	1
5a	311-5121-005	WELDMENT, Bracket	B	1
6	FSP081330	HHCS, 5/8”-11 x 2”, Gr. 8, Plated	-	4
7	FSP081534	HHCS, 3/4"-10 x 2-1/2”, Gr. 5, Plated	-	4
8	FSP231500	NUT, Lock, 3/4”-10, Gr. 5, Plated	-	4
9	FSP241300	NUT, Lock, 5/8”-18, Gr. 5, Plated	-	4
10	FSP521300	WASHER, Flat, 5/8”, SAE, Plated	-	8
11	FSP521500	WASHER, Flat, 3/4", SAE, Plain	-	8
12	FSP551000	WASHER, Lock, 7/16", Plated	-	4

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FRONT MOUNT PUMP KIT

372-5477



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FRONT MOUNT PUMP KIT

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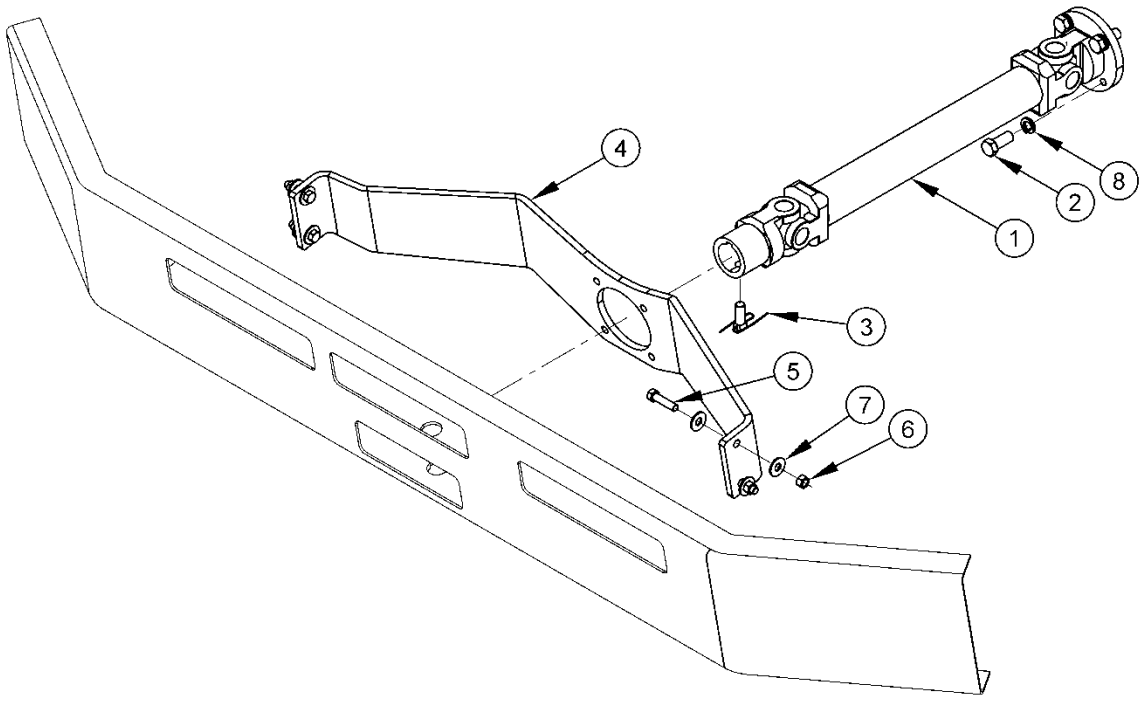
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5477	KIT, Pump, Front Mount	-	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16"-20 x 1", Gr.8, Yellow, Zinc Dichromate Plated	-	4
3	055-1391-008	WASHER, Steel, Hardened, 3/4" x 5/32” Thickness, Zinc, Plated	-	8
4	211-6917	GUARD, Pump Shaft	-	1
5	263-0042	WIRE, Safety, Driveline Lock	-	1
6	311-4726	ASSEMBLY, Bracket, Pump, Mount, Peterbilt (Item Welded)	-	1
7	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	4
8	FSP071560	HHCS, 3/4"-10 x 5”, Gr. 5, Plated	-	4
9	FSP231000	NUT, Lock, 7/16”-14, Gr. 5, Plated	-	2
10	FSP231500	NUT, Lock, 3/4”-10, Gr. 5, Plated	-	4
11	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	6
12	FSP551000	WASHER, Lock, 7/16", Plated	-	4

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MACK MR FRONT MOUNT PUMP KIT

372-5694



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MACK MR FRONT MOUNT PUMP KIT

372-5694

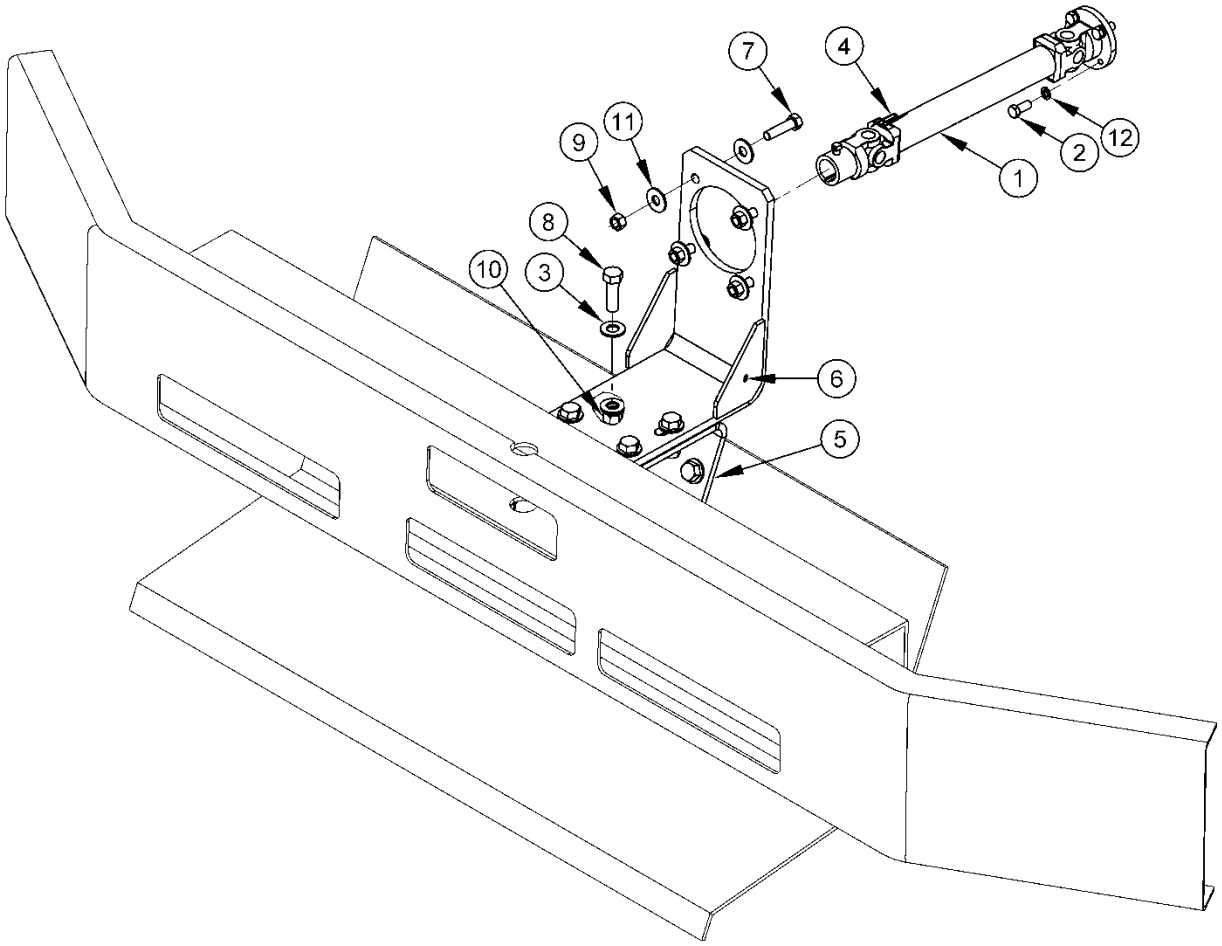
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5694	KIT, Pump, Front Mount, Mack MR	-	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16"-20 x 1", Gr.8, Yellow, Zinc Dichromate Plated	-	4
3	263-0042	WIRE, Safety, Driveline Lock	-	1
4	311-4864	Bracket, Pump, Plate, 1/2”	-	1
5	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	4
6	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	4
7	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	8
8	FSP551000	WASHER, Lock, 7/16", Plated	-	4

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MACK LE PUMP MOUNT KIT

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MACK LE PUMP MOUNT KIT

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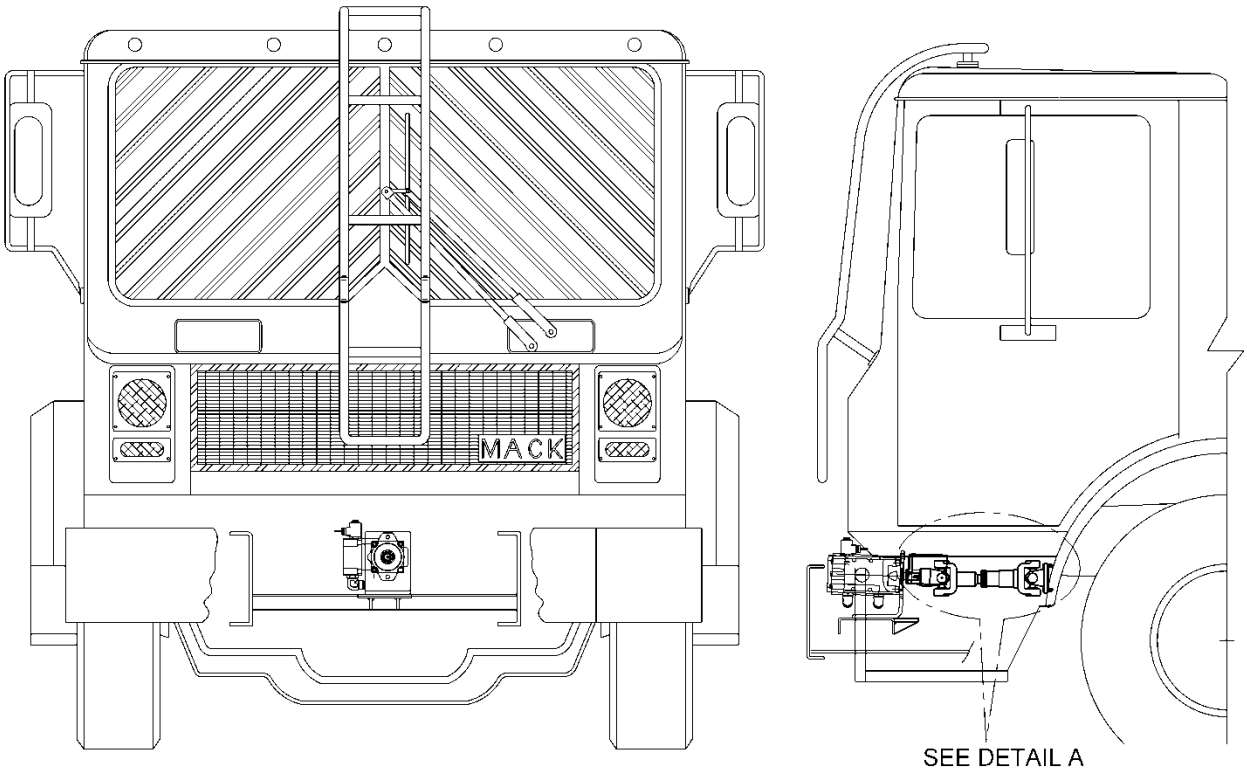
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5685	KIT, Pump, Mount, Mack LE	-	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16"-20 x 1", Gr.8, Yellow, Zinc Dichromate Plated	-	4
3	055-1391-007	WASHER, Steel, Hardened, 5/8" x 1/8” Thickness, Zinc, Plated	-	20
4	263-0042	WIRE, Safety, Driveline Lock	-	1
5	311-4893-001	BRACKET, Pump, 3/8” Steel	-	1
6	311-4893-003	WELDMENT, Bracket, Pump	-	1
7	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	4
8	FSP081330	HHCS, 5/8”-11 x 2”, Gr. 8, Plated	-	10
9	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	4
10	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	-	10
11	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	8
12	FSP551000	WASHER, Lock, 7/16", Plated	-	4

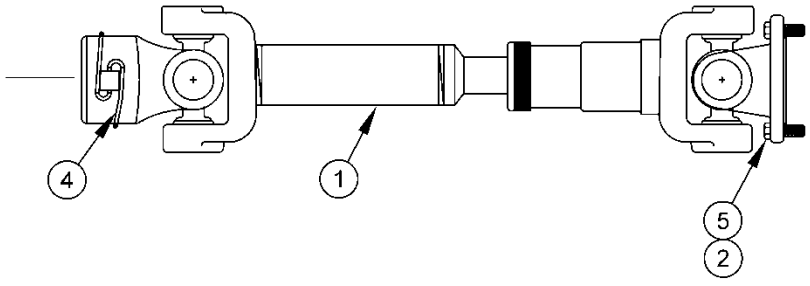
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MACK LE AND MR CHASSIS SUPPLIED PUMP MOUNT BRACKET

372-0278-001





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MACK LE AND MR CHASSIS SUPPLIED PUMP MOUNT BRACKET

372-0278-001

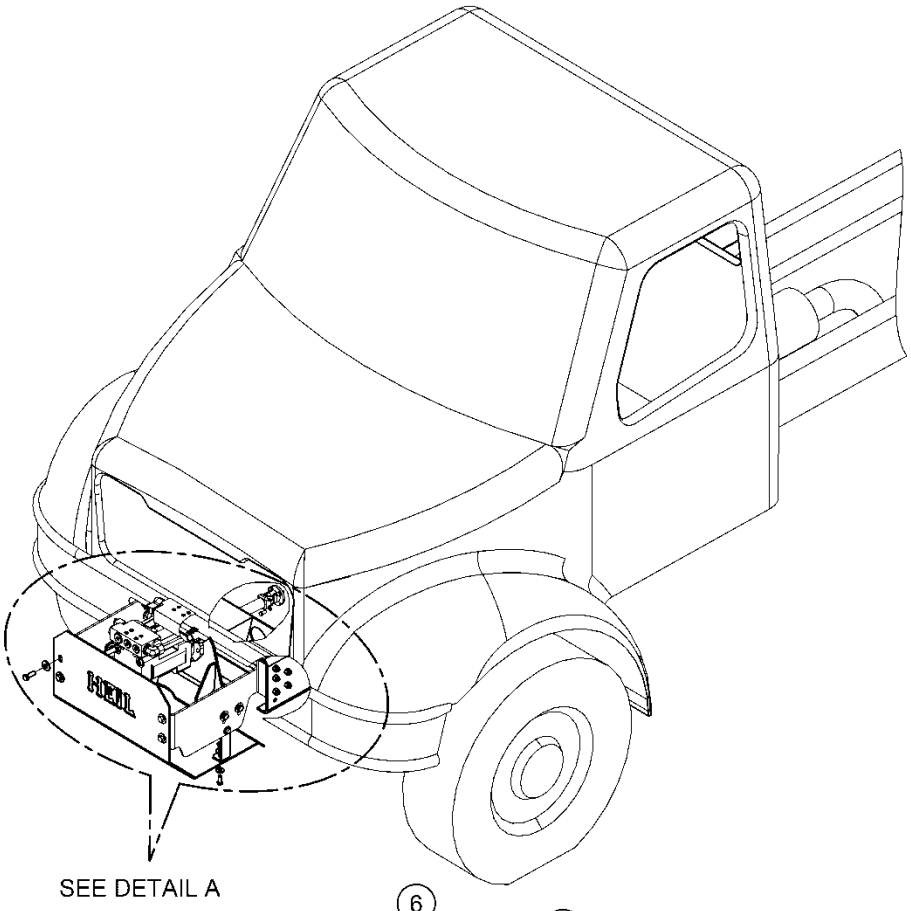
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-0278-001	BRACKET, Pump, Mount, Chassis Supplied, Mack LE and MR	-	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16”-20 x 1", Gr. 8	-	4
-3	NA	-	-	-
4	263-0042	WIRE, Safety, Driveline Lock	-	1
5	FSP551000	WASHER, Lock, 7/16", Plated	-	4

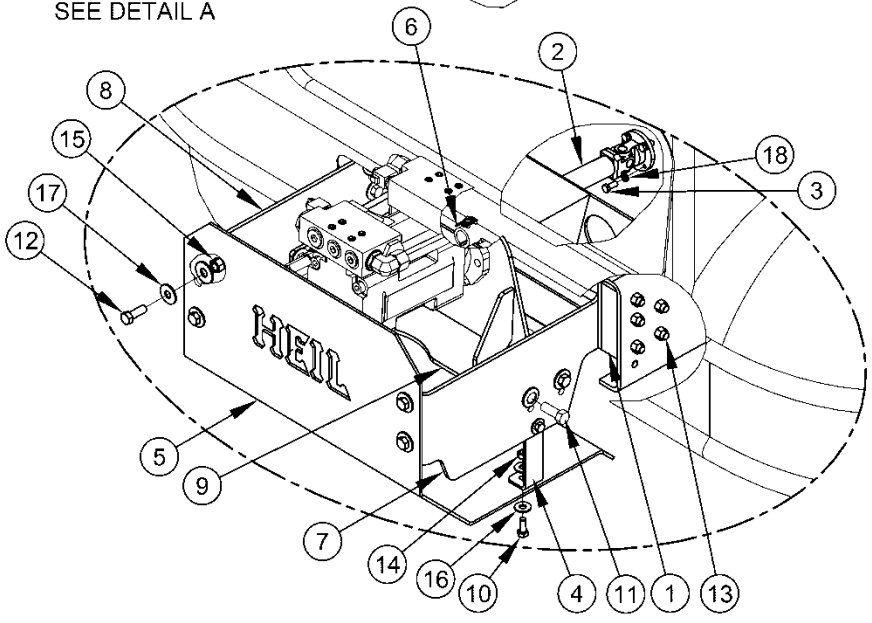
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INTERNATIONAL THRU BUMPER FRONT MOUNT PUMP BRACKET KIT

372-5798





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INTERNATIONAL THRU BUMPER FRONT MOUNT PUMP BRACKET KIT

372-5798

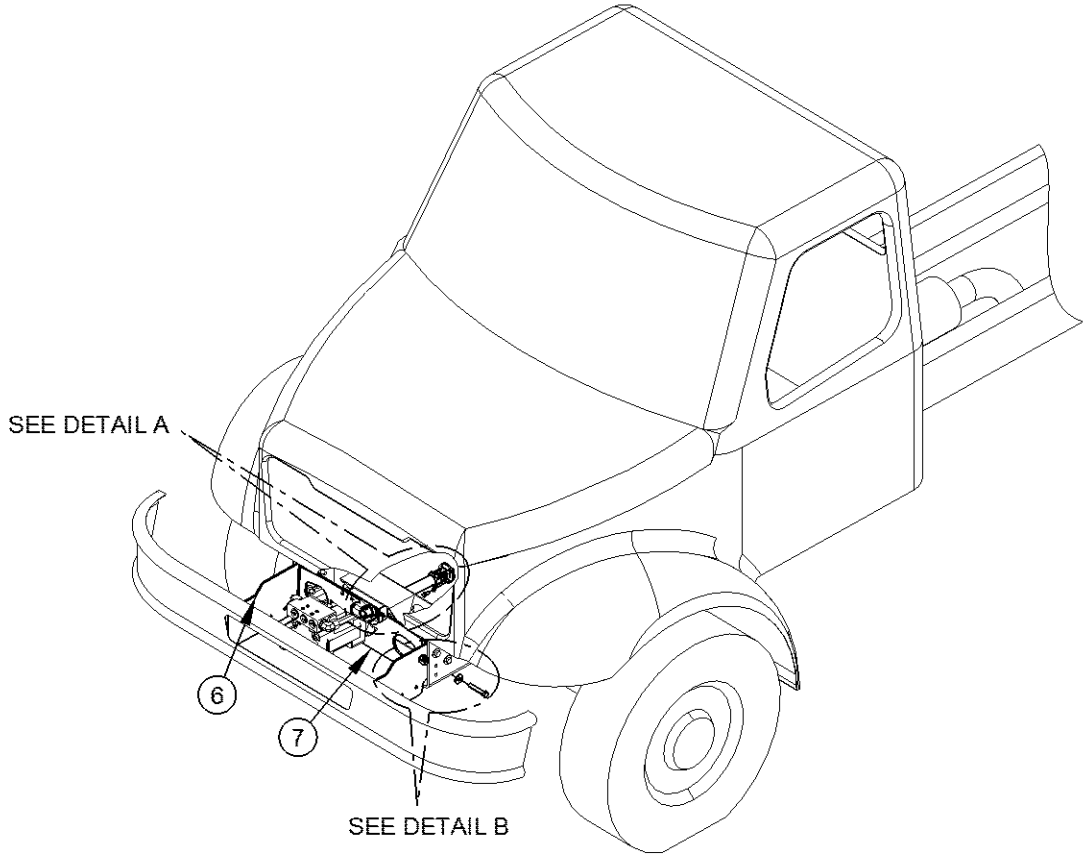
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5798	KIT, Front Mount Pump Bracket, International thru Bumper	-	REF
1	015-3351-001	WELDMENT, Pump, Front Mount, Spacer	-	2
2	030-0661	ASSEMBLY, Driveline	-	1
3	047-1794	HHCS, 7/16”-20 x 1", Gr. 8	-	4
4	126-6796-001	BRACE, Pump Guard	-	2
5	211-5511-013	GUARD, Pump, 1/4” HRS, Front Plate	-	1
6	263-0042	WIRE, Safety, Driveline Lock	-	1
7	311-4121	BRACKET, Pump, Mount, SS	-	1
8	311-4122	BRACKET, Pump, Mount, SS	-	1
9	311-4894-004	WELDMENT, Bracket, Pump	-	1
10	FSP071122	HHCS, 1/2"-13 x 1-1/4”, Gr. 5, Plated	-	2
11	FSP071124	HHCS, 1/2"-13 x 1-1/2”, Gr. 5, Plated	-	2
12	FSP071326	HHCS, 5/8”-11 x 1-3/4”, Gr. 5, Plated	-	8
13	FSP071352	HHCS, 5/8”-11 x 4-1/4”, Gr. 5, Plated	-	10
14	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	4
15	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	-	18
16	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	6
17	FSP511300	WASHER, Flat, 5/8” Std., Plated	-	26
18	FSP551000	WASHER, Lock, 7/16", Plated	-	4

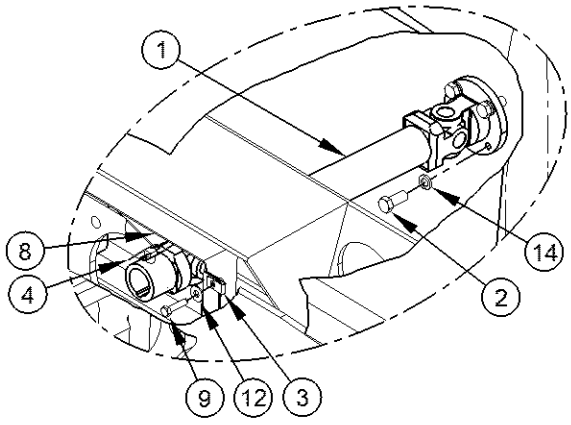
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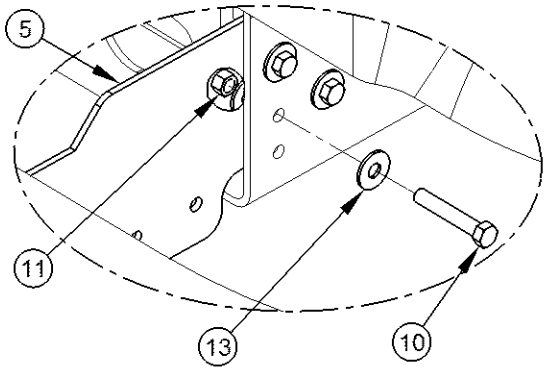
INTERNATIONAL WITH BUMPER EXTENSION FRONT MOUNT PUMP BRACKET KIT

372-5798-001





DETAIL A



DETAIL B

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INTERNATIONAL WITH BUMPER EXTENSION FRONT MOUNT PUMP BRACKET KIT

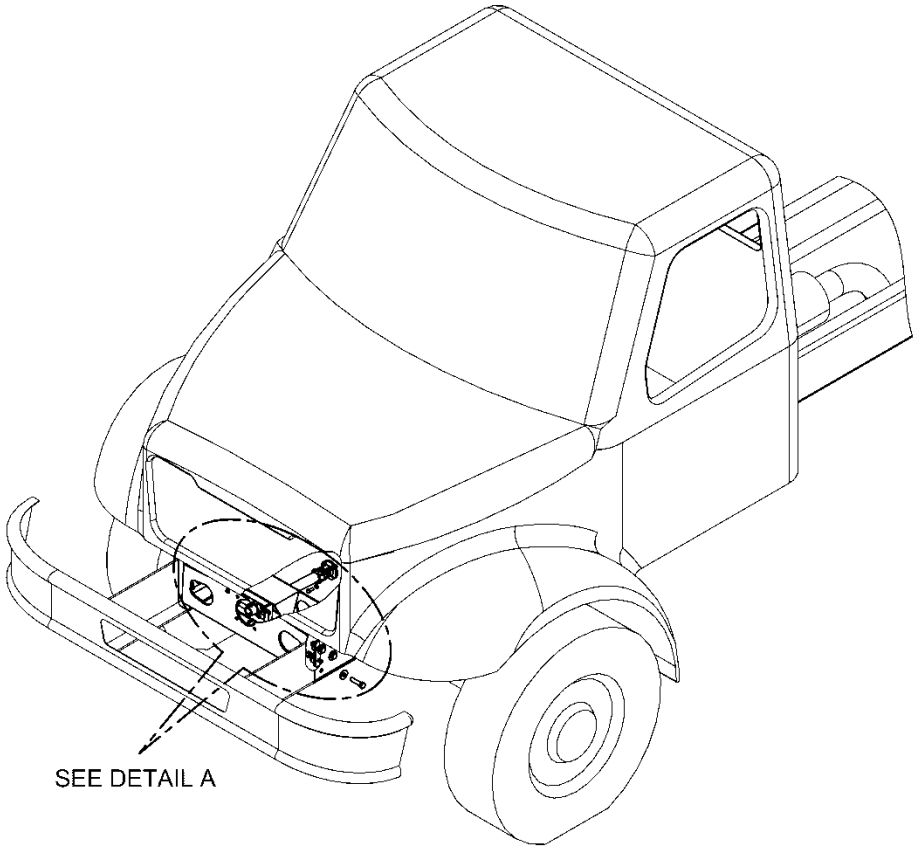
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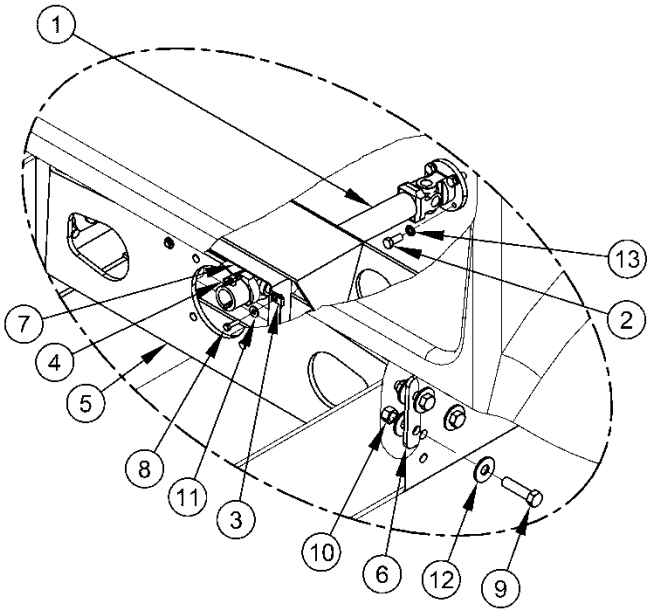
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5798-001	KIT, Front Mount Pump Bracket, International with Bumper Extension	-	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16”-20 x 1", Gr. 8	-	4
3	047-2608	NUT, Spring, 1/4"-20, Black	-	2
4	263-0042	WIRE, Safety, Driveline Lock	-	1
5	311-4374-002	BRACKET, Front Mount, CS	-	1
6	311-4375-002	BRACKET, Front Mount, SS	-	1
7	311-4894	BRACKET, Pump, Front Mount	-	1
8	311-4894-005	GUARD, Driveline	-	1
9	FSP070721	HHCS, 1/4"-20 x 1-1/8”, Gr. 5, Plated	-	2
10	FSP081346	HHCS, 5/8”-11 x 3-3/4”, Gr. 8, Plated	-	8
11	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	-	8
12	FSP510700	WASHER, Flat, 1/4" Std., Plated	-	2
13	FSP511300	WASHER, Flat, 5/8” Std., Plated	-	16
14	FSP551000	WASHER, Lock, 7/16", Plated	-	4

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INTERNATIONAL WITH EXTENSION FRAME RAILS
FRONT MOUNT PUMP BRACKET KIT
372-5798-002





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INTERNATIONAL WITH EXTENSION FRAME RAILS
FRONT MOUNT PUMP BRACKET KIT
372-5798-002

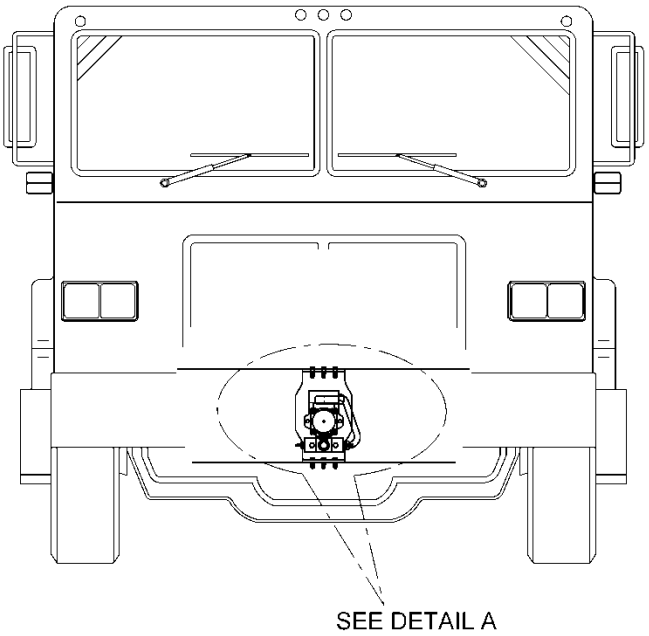
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5798-002	KIT, Front Mount Pump Bracket, International with Extension Frame Rails	-	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16”-20 x 1", Gr. 8	-	4
3	047-2608	NUT, Spring, 1/4"-20, Black	-	2
4	263-0042	WIRE, Safety, Driveline Lock	-	1
5	311-4894	BRACKET, Pump, Front Mount	-	1
6	311-4894-002	SPACER, Pump, Front Mount	-	2
7	311-4894-005	GUARD, Driveline	-	1
8	FSP070720	HHCS, 1/4"-20 x 1”, Gr. 5, Plated	-	2
9	FSP081334	HHCS, 5/8”-11 x 2-1/2”, Gr. 8, Plated	-	8
10	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	-	8
11	FSP510700	WASHER, Flat, 1/4" Std., Plated	-	2
12	FSP511300	WASHER, Flat, 5/8” Std., Plated	-	16
13	FSP551000	WASHER, Lock, 7/16", Plated	-	4

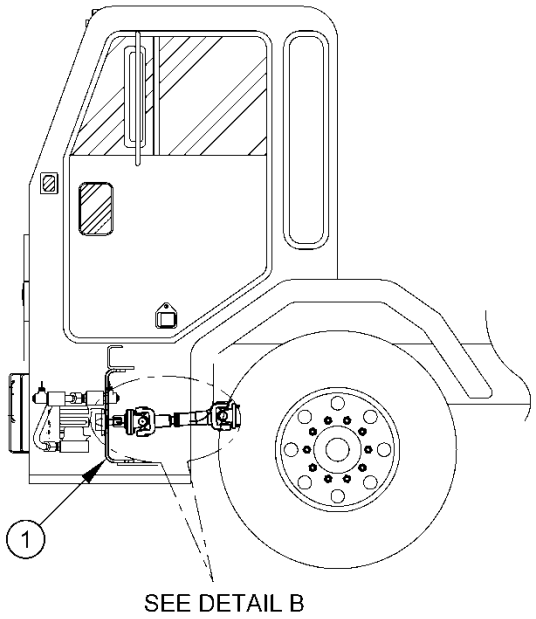
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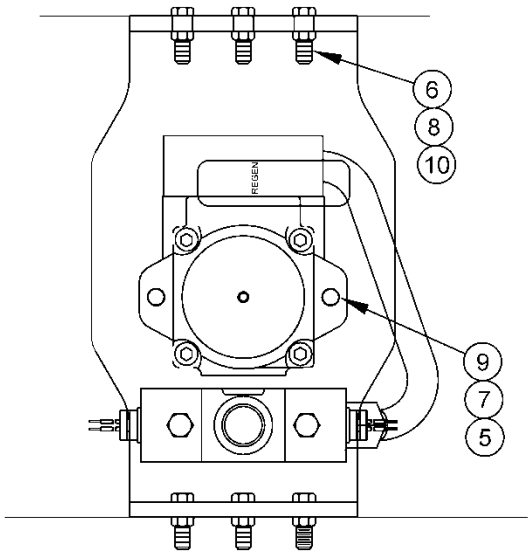
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PUMP MOUNT KIT

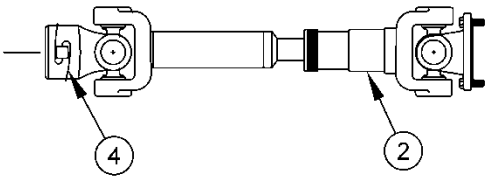
372-1577







DETAIL A



DETAIL B

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PUMP MOUNT KIT

372-1577

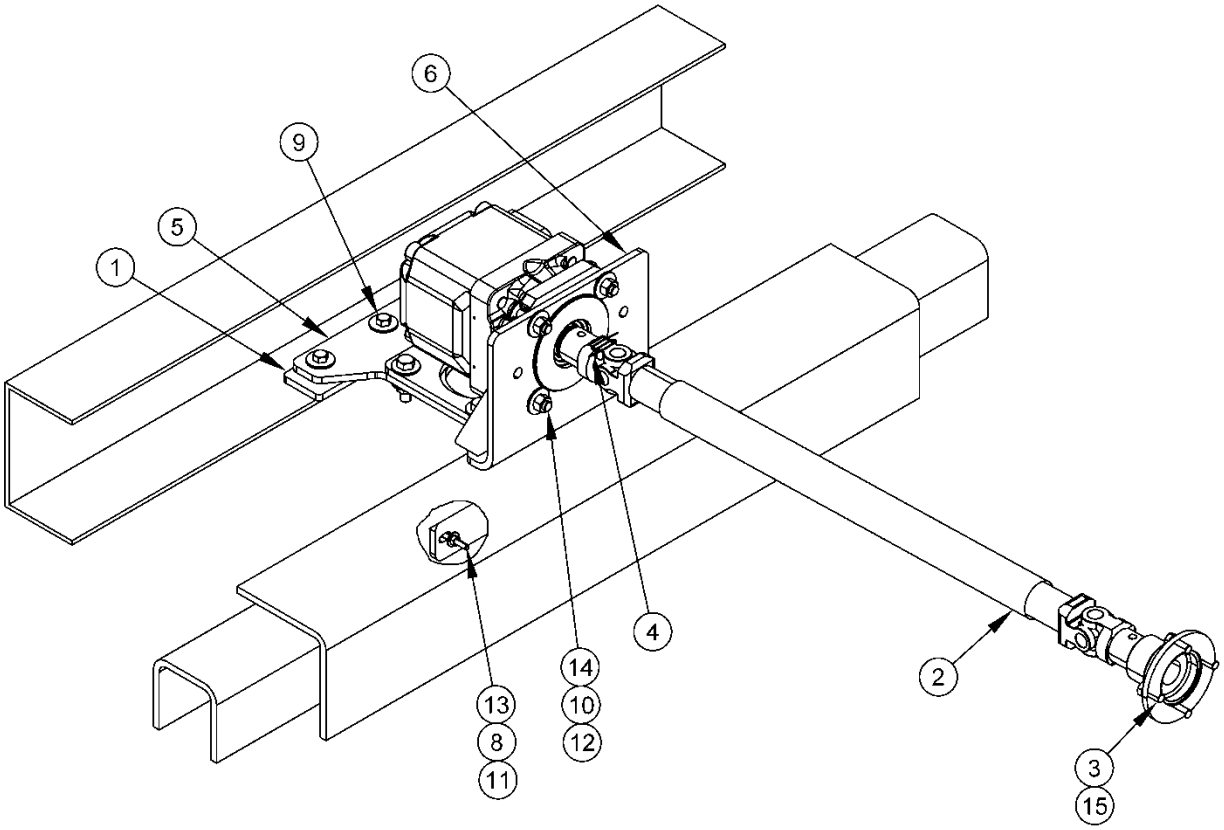
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-1577	KIT, Pump Mount, 2 Bolt	-	REF
1	311-2572	BRACKET, Pump, 1/2"	-	1
2	030-0661	ASSEMBLY, Driveline	-	1
-3	NA	-	-	-
4	263-0042	WIRE, Safety, Driveline Lock	-	1
5	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	2
6	FSP071330	HHCS, 5/8"-11 x 2”, Gr. 5, Plated	-	6
7	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	2
8	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	-	6
9	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	2
10	FSP511300	WASHER, Flat, 5/8” Std., Plated	-	6
-11	701-7398-DWG	INSTALLATION, Driveline, Front Mount	-	1

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AUTOCAR ACX C-FLANGE FRONT MOUNT PUMP KIT

372-5361-001



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AUTOCAR ACX C-FLANGE FRONT MOUNT PUMP KIT

372-5361-001

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5361-001	KIT, Pump, Front Mount, C-Flange, Autocar ACX	-	REF
1	015-3390	SPACER, Plate	-	2
2	030-0661	ASSEMBLY, Driveline	-	1
3	047-1794	HHCS, 7/16"-20 x 1", Gr.8, Yellow, Zinc Dichromate Plated	-	4
4	263-0042	WIRE, Safety, Driveline Lock	-	1
5	311-4725	BRACKET, Pump, Front Mount, Autocar ACX (Depends on Pump)	-	1
6	311-4725-003	BRACKET, Pump, Front Mount, Autocar ACX (Depends on Pump)	-	1
8	FSP070750	HHCS, 1/4”-20 x 4” Gr. 5, Plated	-	4
9	FSP071032	HHCS, 7/16”-14 x 2-1/4”, Gr. 5, Plated	-	3
10	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	10
11	FSP230700	NUT, Lock, 1/4”-20, Gr. 5, Plated	-	4
12	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	13
13	FSP510700	WASHER, Flat, 1/4" Std., Plated	-	8
14	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	26
15	FSP551000	WASHER, Lock, 7/16", Plated	-	4

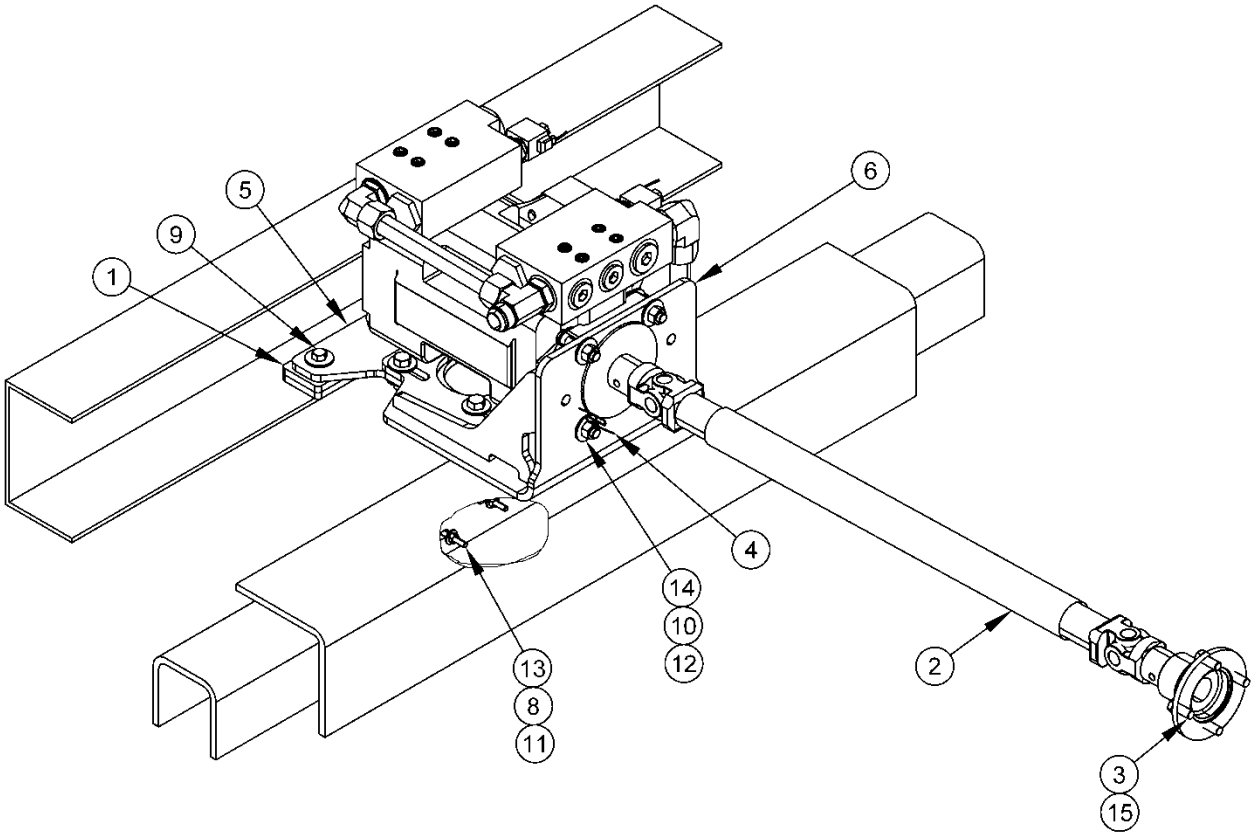
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AUTOCAR ACX C-FLANGE T7DD FRONT MOUNT PUMP KIT

372-5361-002



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AUTOCAR ACX C-FLANGE T7DD FRONT MOUNT PUMP KIT

372-5361-002

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5361-002	KIT, Pump, Front Mount, C Flange T7DD, Autocar ACX	-	REF
1	015-3390	SPACER, Plate	-	2
2	030-0661	ASSEMBLY, Driveline	-	1
3	047-1794	HHCS, 7/16"-20 x 1", Gr.8, Yellow, Zinc Dichromate Plated	-	4
4	263-0042	WIRE, Safety, Driveline Lock	-	1
5	311-4725	BRACKET, Pump, Front Mount, Autocar ACX (Depends on Pump)	-	1
6	311-4725-001	BRACKET, Pump, Front Mount, Autocar ACX (Depends on Pump)	-	1
8	FSP070750	HHCS, 1/4”-20 x 4” Gr. 5, Plated	-	4
9	FSP071032	HHCS, 7/16”-14 x 2-1/4”, Gr. 5, Plated	-	3
10	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	10
11	FSP230700	NUT, Lock, 1/4”-20, Gr. 5, Plated	-	4
12	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	13
13	FSP510700	WASHER, Flat, 1/4" Std., Plated	-	8
14	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	26
15	FSP551000	WASHER, Lock, 7/16", Plated	-	4

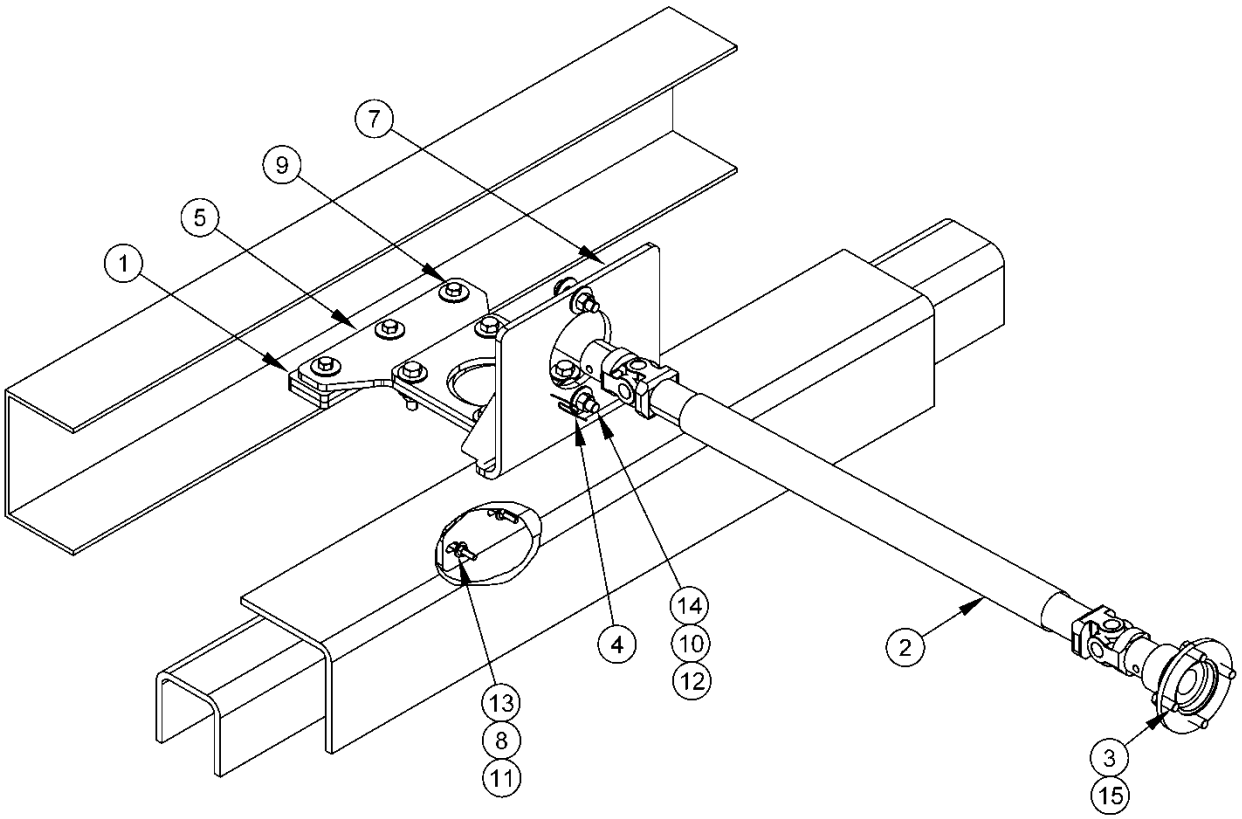
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AUTOCAR ACX B-FLANGE FRONT MOUNT PUMP KIT

372-5361-003



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AUTOCAR ACX B-FLANGE FRONT MOUNT PUMP KIT

372-5361-003

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5361-003	KIT, Pump, Front Mount, B Flange, Autocar ACX	-	REF
1	015-3390	SPACER, Plate	-	2
2	030-0661	ASSEMBLY, Driveline	-	1
3	047-1794	HHCS, 7/16"-20 x 1", Gr.8, Yellow, Zinc Dichromate Plated	-	4
4	263-0042	WIRE, Safety, Driveline Lock	-	1
5	311-4725	BRACKET, Pump, Front Mount, Autocar ACX (Depends on Pump)	-	1
7	311-4725-005	BRACKET, Pump, Front Mount, Autocar ACX (Depends on Pump)	-	1
8	FSP070750	HHCS, 1/4”-20 x 4” Gr. 5, Plated	-	4
9	FSP071032	HHCS, 7/16”-14 x 2-1/4”, Gr. 5, Plated	-	3
10	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	10
11	FSP230700	NUT, Lock, 1/4”-20, Gr. 5, Plated	-	4
12	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	13
13	FSP510700	WASHER, Flat, 1/4" Std., Plated	-	8
14	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	26
15	FSP551000	WASHER, Lock, 7/16", Plated	-	4

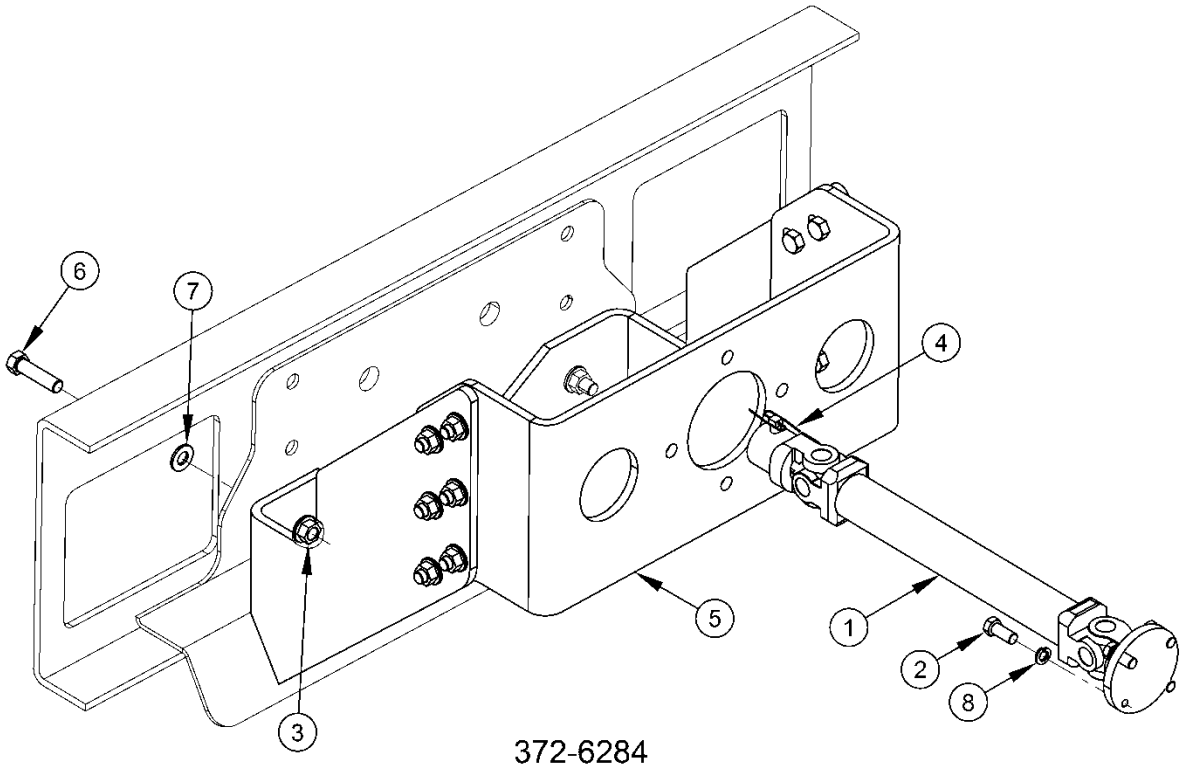
Note: Item 6 is Welded.

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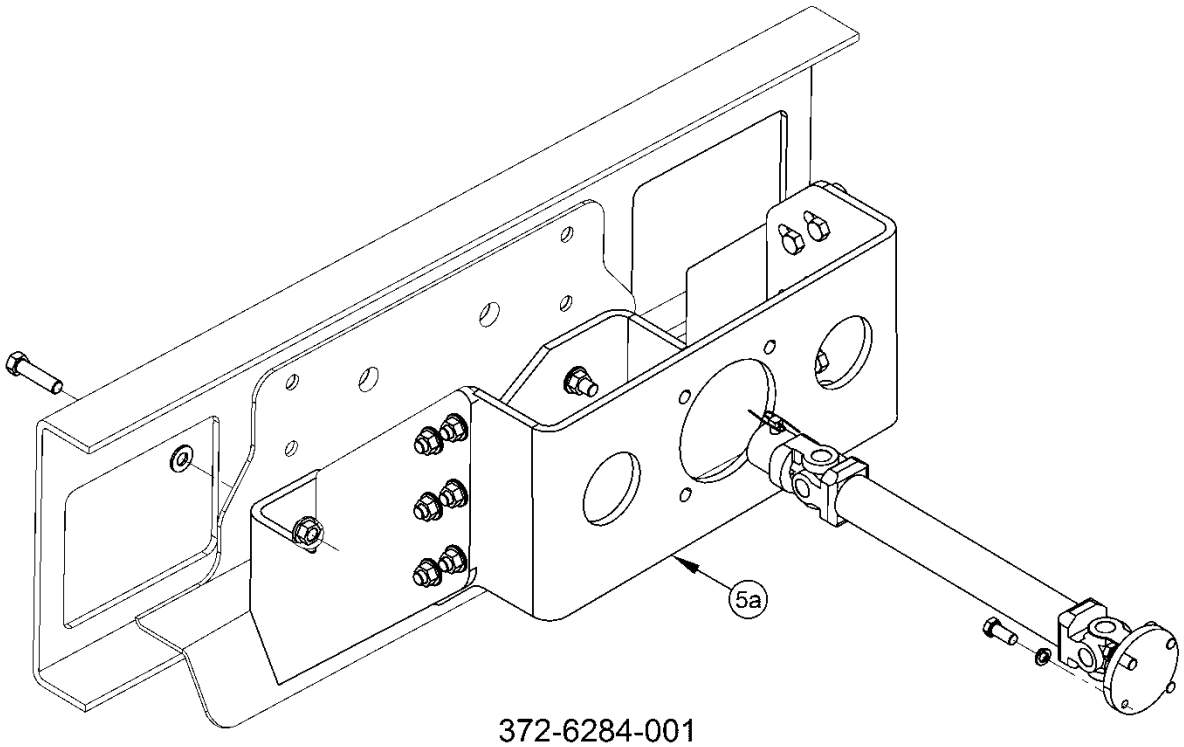
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CONDOR FRONT MOUNT 2 AND 4 BOLT PUMP BRACKET KITS

372-6284, 372-6284-001



372-6284



372-6284-001

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CONDOR FRONT MOUNT 2 AND 4 BOLT PUMP BRACKET KITS

372-6284, 372-6284-001

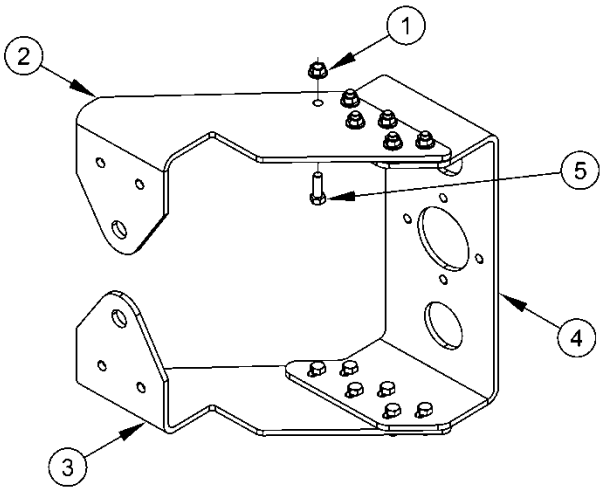
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-6284	KIT, Bracket, Pump, 2 Bolt, Front Mount, Condor	A	REF
-	372-6284-001	KIT, Bracket, Pump, 4 Bolt, Front Mount, Condor	B	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16”-20 x 1", Gr. 8	-	4
3	047-2513-005	NUT, Flange, 1/2"-13	-	4
4	263-0042	WIRE, Safety, Driveline Lock	-	1
5	311-5237	KIT, Front Mount Pump Bracket, Condor, 2 Bolt (See Pg. 2097)	A	1
5a	311-5237-001	KIT, Front Mount Pump Bracket, Condor, 4 Bolt (See Pg. 2097)	B	1
6	FSP081130	HHCS, 1/2"-13 x 2”, Gr. 8, Plated	-	4
7	FSP521100	WASHER, Flat, 1/2", SAE, Plated	-	4
8	FSP551000	WASHER, Lock, 7/16", Plated	-	4

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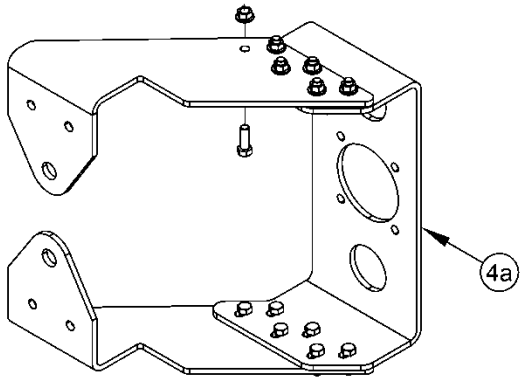
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CONDOR FRONT MOUNT 2 AND 4 BOLT PUMP BRACKET KITS

311-5237, 311-5237-001



2 BOLT PUMP BRACKET KIT



4 BOLT PUMP BRACKET KIT

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CONDOR FRONT MOUNT 2 AND 4 BOLT PUMP BRACKET KITS

311-5237, 311-5237-001

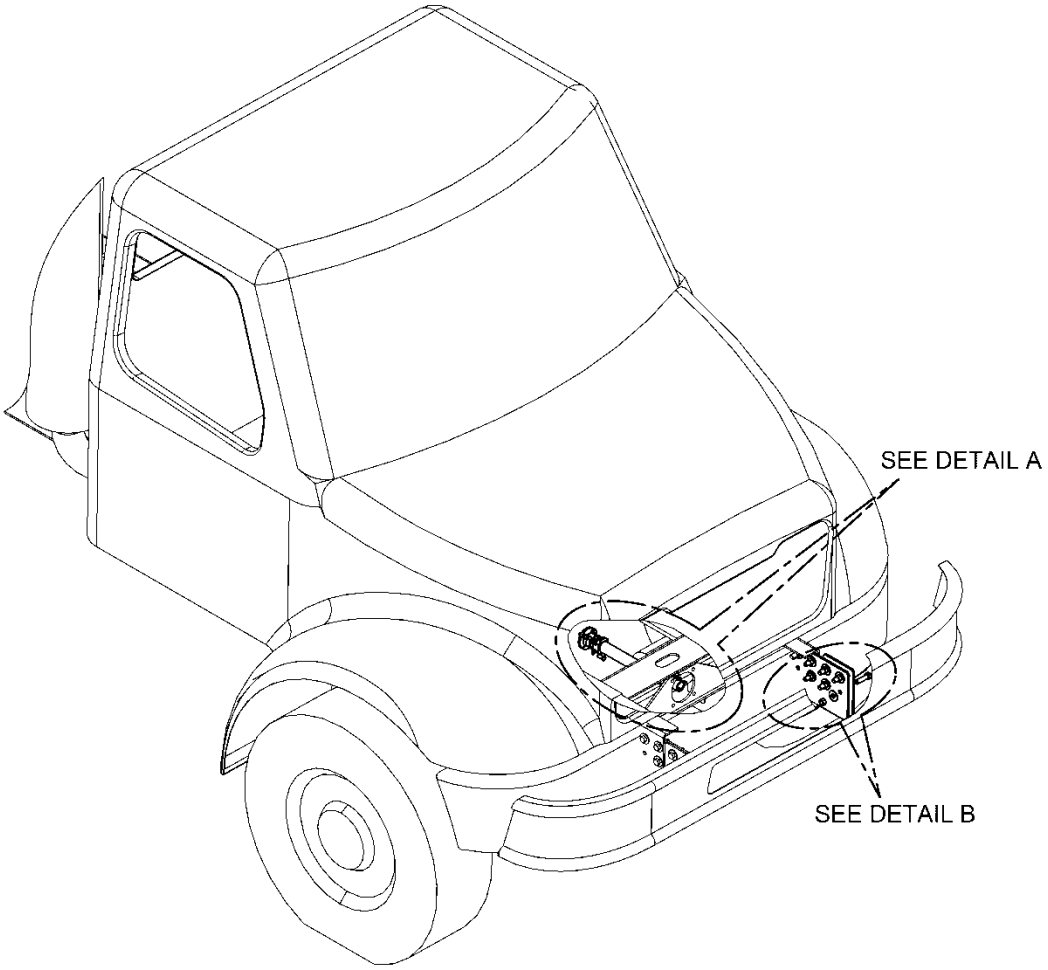
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-5237	KIT, Bracket, Pump, 2 Bolt, Front Mount, Condor	A	REF
-	311-5237-001	KIT, Bracket, Pump, 4 Bolt, Front Mount, Condor	B	REF
1	047-2513-005	NUT, Flange, 1/2"-13	-	12
2	234-3060-002	BRACKET, Mtg., Side Plate	-	1
3	234-3060-003	PLATE, Side, Mtg.	-	1
4	311-5237-002	BRACKET, Pump, 2 Bolt, Front Mount, Condor	A	1
4a	311-5237-003	BRACKET, Pump, 4 Bolt, Front Mount, Condor	B	1
5	FSP071124	HHCS, 1/2"-13 x 1-1/2”, Gr. 5, Plated	-	12

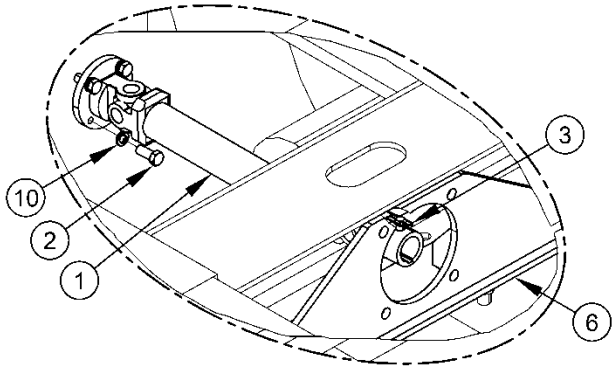
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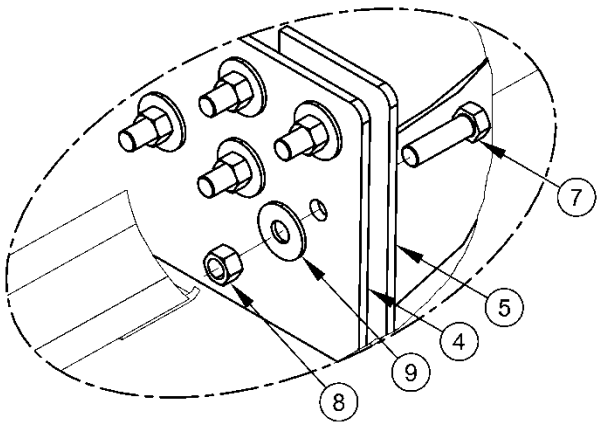
FREIGHTLINER WITH BUMPER EXTENSION FRONT MOUNT PUMP BRACKET KIT

372-5692





DETAIL A



DETAIL B

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FREIGHTLINER WITH BUMPER EXTENSION FRONT MOUNT PUMP BRACKET KIT

372-5692

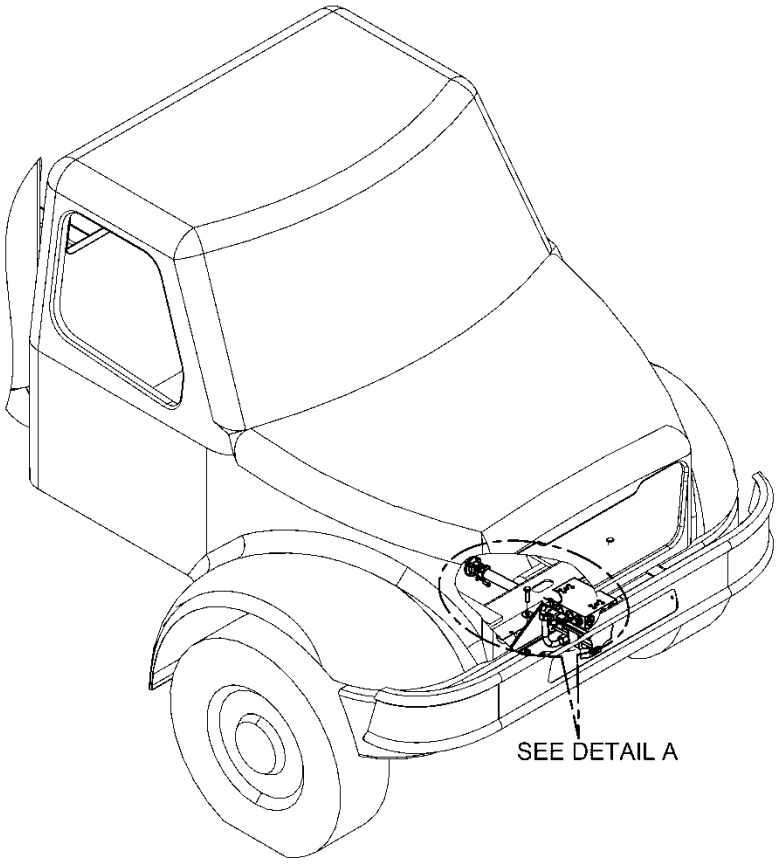
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5692	KIT, Front Mount Pump Bracket, Freightliner w/Bumper Extension	-	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16”-20 x 1", Gr. 8	-	4
3	263-0042	WIRE, Safety, Driveline Lock	-	1
4	311-4875-001	BUMPER EXTENSION, Freightliner	-	2
5	311-4875-002	SPACER, Bumper Extension, Freightliner	-	2
6	311-4875-004	BRACKET, Pump, Front Mount	-	1
7	FSP081332	HHCS, 5/8”-11 x 2-1/4”, Gr. 8, Plated	-	18
8	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	-	18
9	FSP511300	WASHER, Flat, 5/8” Std., Plated	-	36
10	FSP551000	WASHER, Lock, 7/16", Plated	-	4

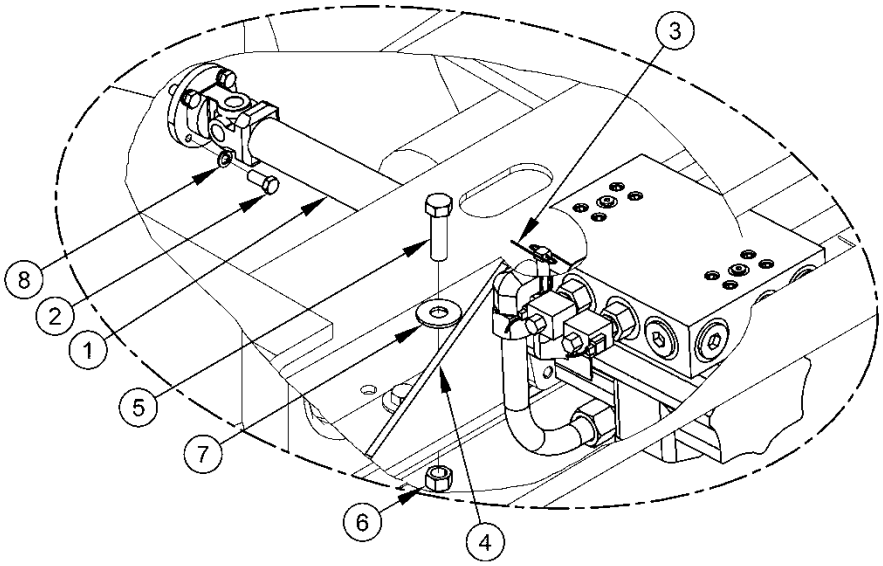
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FREIGHTLINER FRONT MOUNT PUMP BRACKET KIT

372-5692-001





DETAIL A

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FREIGHTLINER FRONT MOUNT PUMP BRACKET KIT

372-5692-001

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5692-001	KIT, Front Mount Pump Bracket, Freightliner	-	REF
1	030-0661	ASSEMBLY, Driveline	-	1
2	047-1794	HHCS, 7/16”-20 x 1", Gr. 8	-	4
3	263-0042	WIRE, Safety, Driveline Lock	-	1
4	311-4875-004	BRACKET, Pump, Front Mount	-	1
5	FSP081332	HHCS, 5/8”-11 x 2-1/4”, Gr. 8, Plated	-	4
6	FSP231300	NUT, Lock, 5/8”-11, Gr. 5, Plated	-	4
7	FSP511300	WASHER, Flat, 5/8” Std., Plated	-	8
8	FSP551000	WASHER, Lock, 7/16", Plated	-	4

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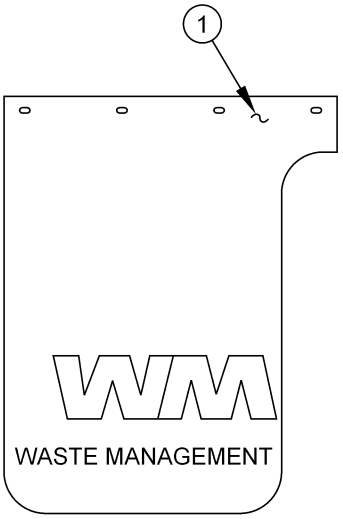
MUDFLAP KITS

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NO ILLUSTRATION

WASTE MANAGEMENT MUDFLAP KIT
035-3221-001



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STANDARD REAR MOUNT MUDFLAP KITS

035-3137, 035-3617

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	035-3137	KIT, MudFlap, Rear, Standard Mount	A	REF
-	035-3617	KIT, MudFlap, Rear, Standard Mount, Allied	B	REF
-1	021-2732	BAR, Mudflap, 23-3/4”	-	2
-2	035-2650	MUDFLAP, 24” x 30”	A	2
-2a	035-3494-002	MUDFLAP, 24” W x 30”, Allied Logo, Vertical Ribbed	B	2
-3	177-2303	SUPPORT, Mudflap, Bracket, 2” x 2” x 1/4" Angle, SS	-	1
-4	177-2304	SUPPORT, Mudflap, Bracket, 2” x 2” x 1/4" Angle, CS	-	1
-5	FS070822	HHCS, 5/16”-18 x 1-1/4”, Gr. 5	-	8
-6	FS230800	NUT, Lock, 5/16”-18, Gr. 5	-	8

WASTE MANAGEMENT MUDFLAP KIT

035-3221-001

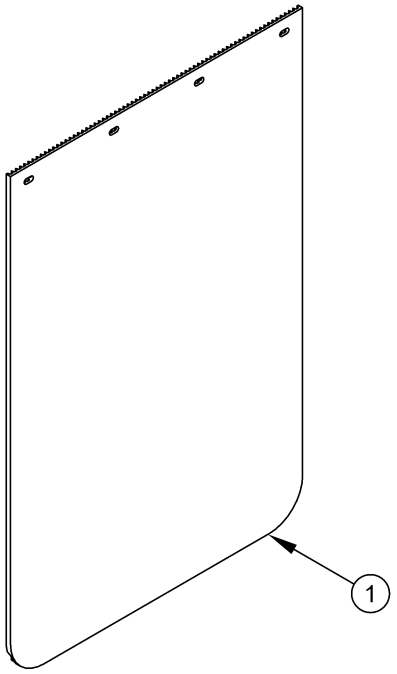
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	035-3221-001	KIT, Mudflap, Waste Management, Pusher/Tag Axles	-	REF
1	035-3218-036	MUDFLAP, Waste Management, 36”	-	2

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ALLIED MUDFLAP KIT

372-3615



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ALLIED MUDFLAP KIT

372-3615

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-3615	KIT, Mudflap, Allied	-	REF
1	035-3524	MUDFLAP, No Logo, Vertically Ribbed, 24" W x 36"	-	2

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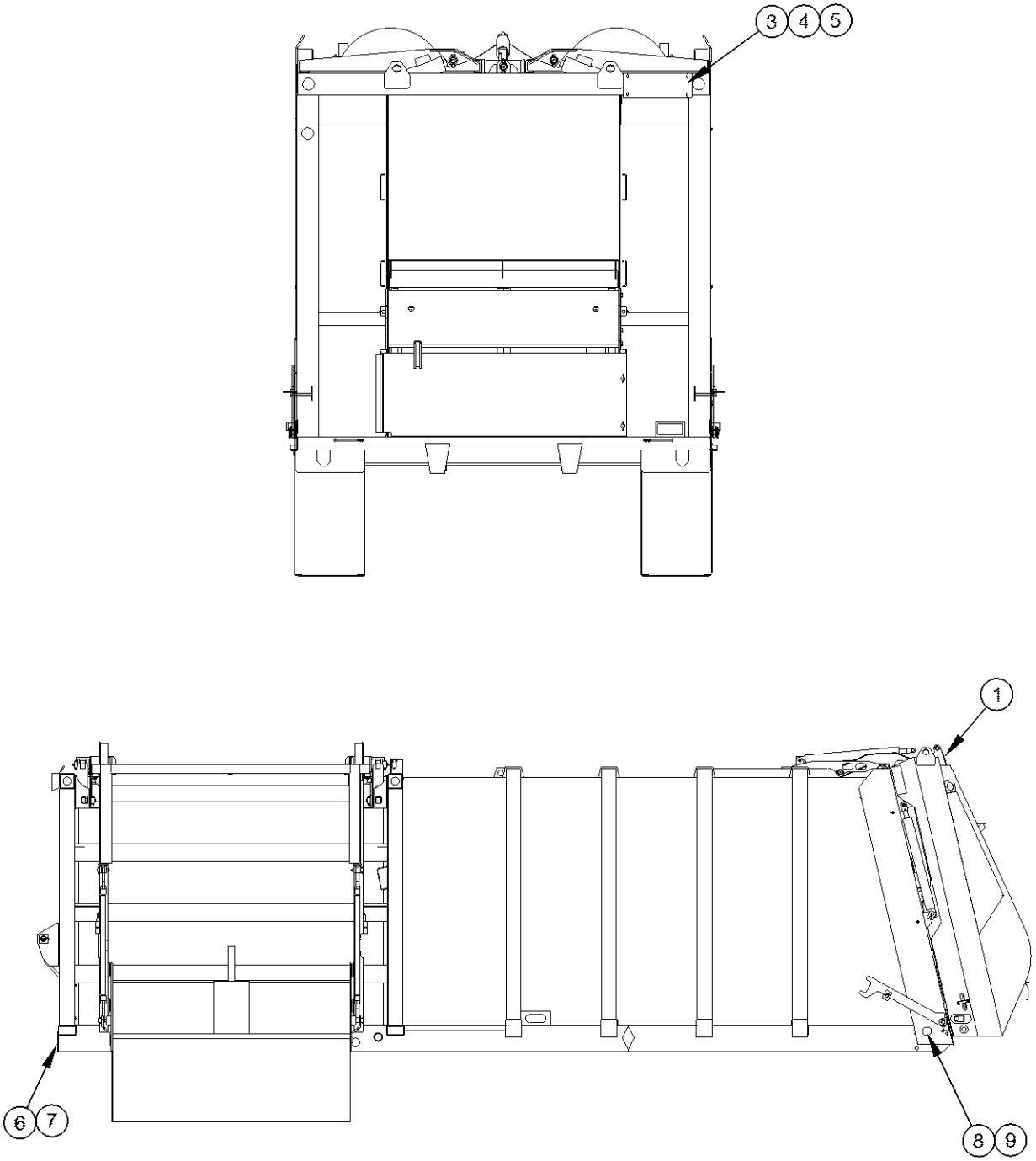
TRIM KIT

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TRIM KIT

372-4391



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TRIM KIT

372-4391

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4391	KIT, Trim	-	REF
1	212-2016	INSTALLATION, Decal (See Pg. 2117)	-	1
-2	212-2073	KIT, Tape, Reflective (See Pg. 2113)	-	1
3	212-1343	NAME PLATE, Heil	-	1
4	FSP070715	HHCS, 1/4”-20 x 3/4”, Gr. 5 Plated	-	4
5	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	4
6	212-2095	PLATE, Serial	-	1
7	047-1786	RIVET, 3/16” Dia.	-	4
8	115-0747	LIGHT, Halogen, Quartz (See SM 7)	-	4
9	047-2151-001	SCREW, Tek, #12-14 x 3/4”	-	4

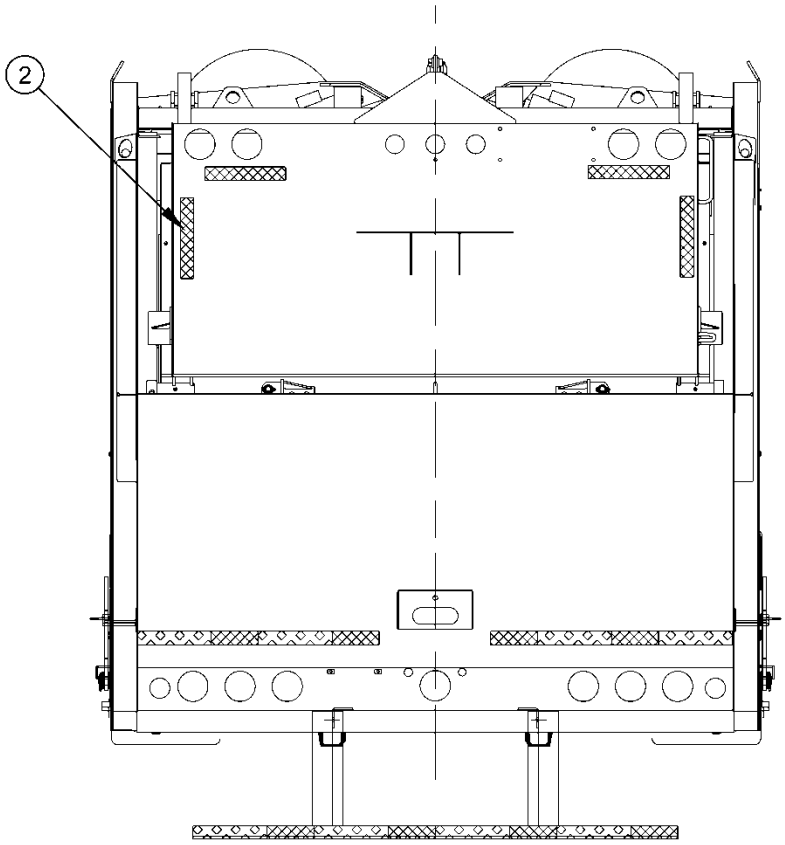
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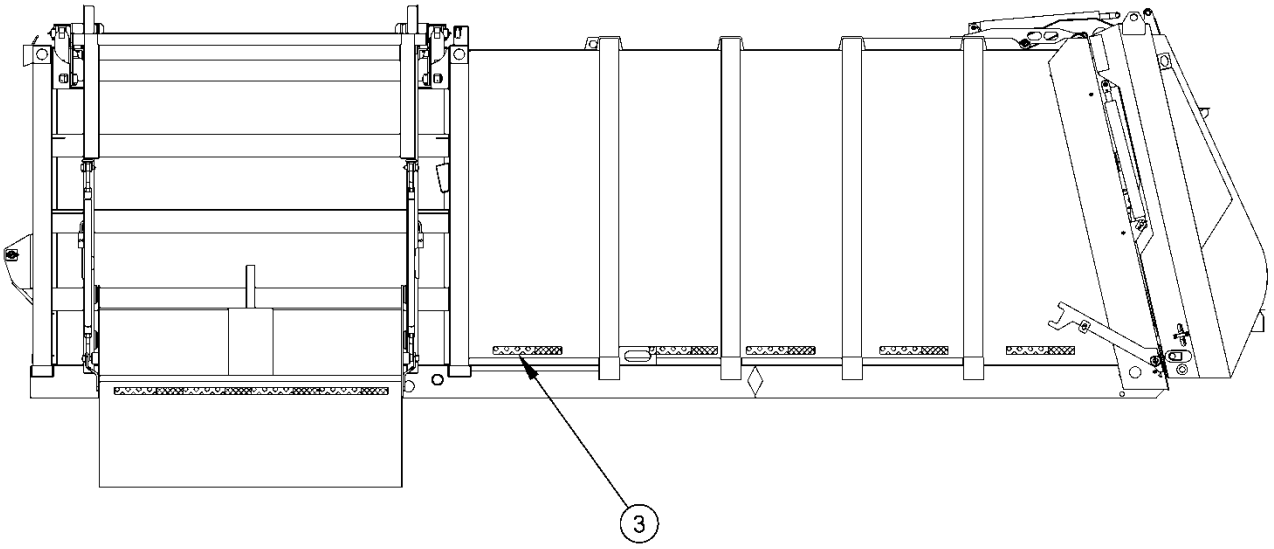
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REFLECTIVE TAPE KIT

212-2073





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REFLECTIVE TAPE KIT

212-2073

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	212-2073	KIT, Tape, Reflective	-	REF
2	212-2416	TAPE, Reflective, White	-	4’
3	212-2420	TAPE, Reflective, Red and White	-	39’

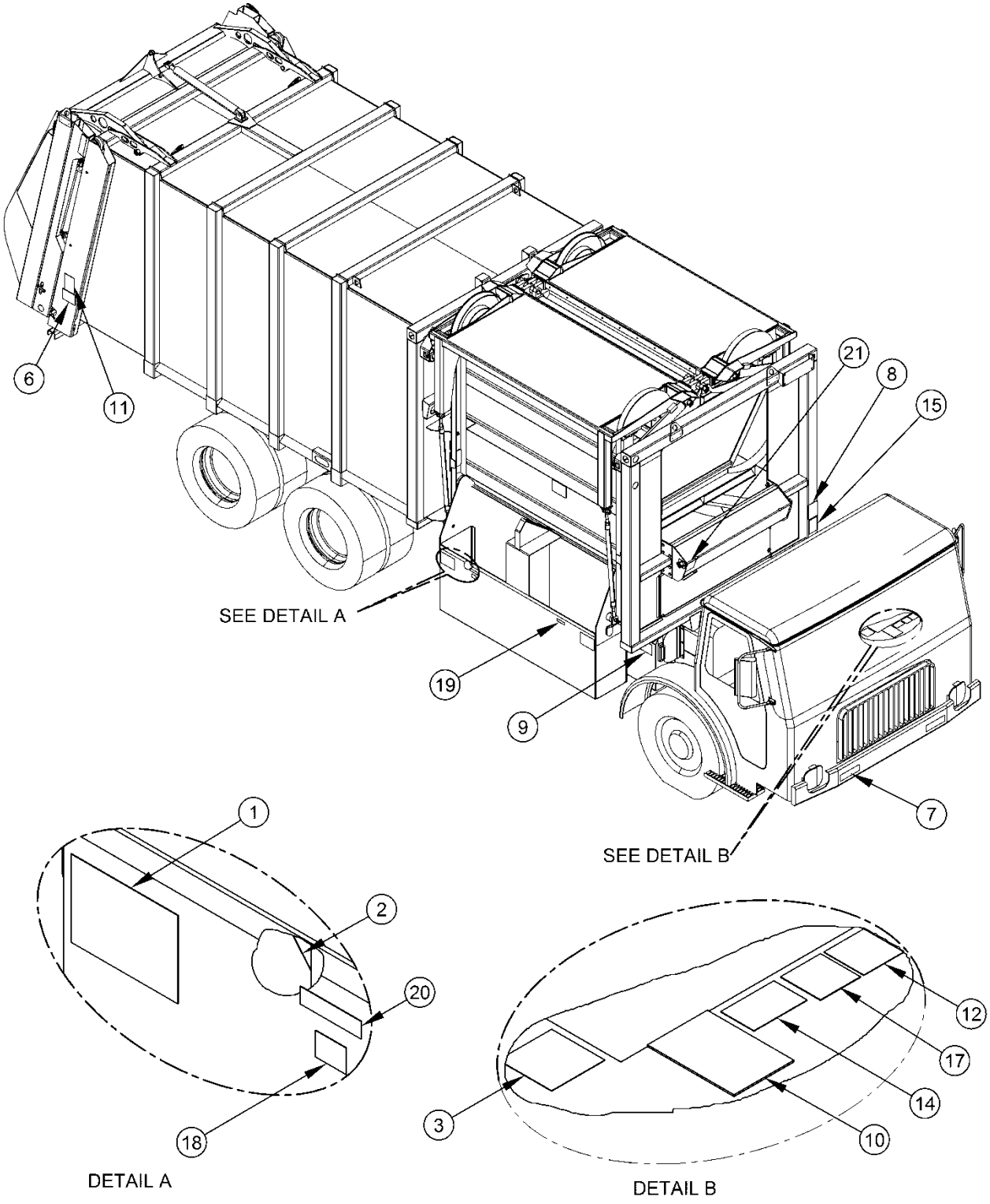
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DECAL INSTALLATION

212-2016



SHEET 1 OF 2

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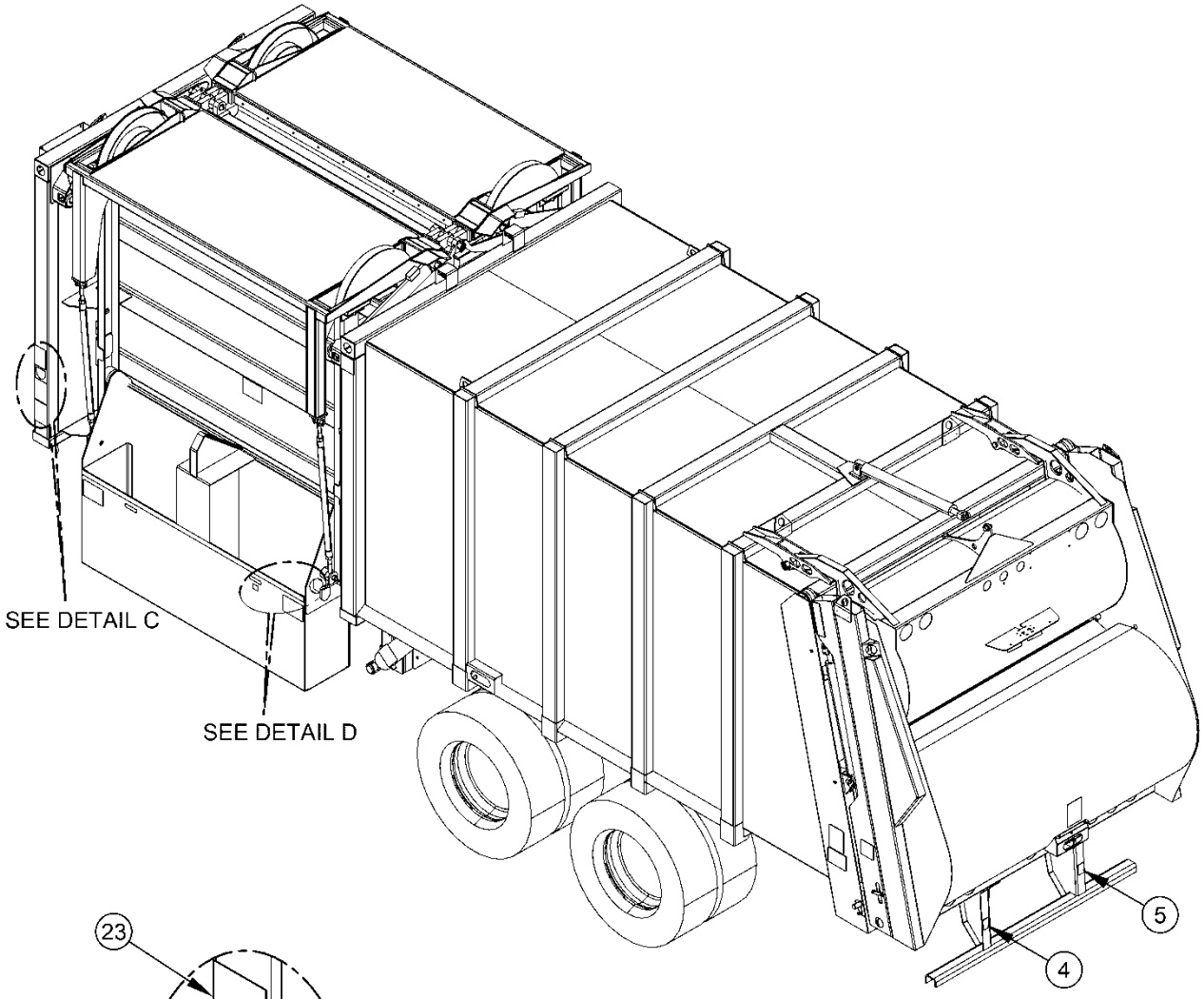
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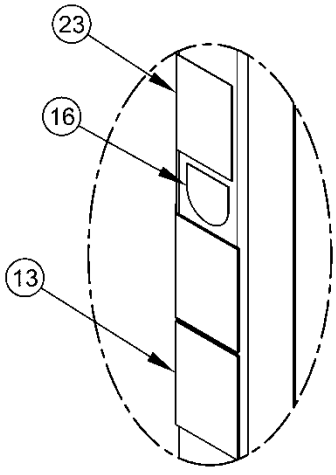
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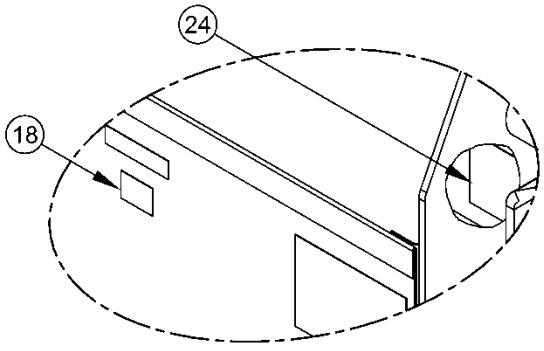
DECAL INSTALLATION

212-2016





DETAIL C



DETAIL D

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DECAL INSTALLATION

212-2016

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	212-2016	INSTALLATION, Decal	-	REF
1	212-0980	DECAL, Danger, Stay Clear, Container Off Ground	-	6
2	212-1103	DECAL, Danger, Body Elevated	-	2
3	212-1626	DECAL, Danger, Tailgate Raise, Before Body	-	1
4	212-1631	DECAL, Warning, Bumper, Not Step	-	1
5	212-1634	DECAL, Danger, Stand Clear	-	1
6	212-1642	DECAL, Danger, Top Hopper and Tailgate Opening	-	2
7	212-1764	DECAL, Danger, Under Chassis, Stop Engine	-	2
8	212-1781	DECAL, Caution, Enter Body, Stop Engine	-	1
9	212-1782	DECAL, Hydraulic Oil Only	-	1
10	212-1783	DECAL, Warning, Operator's Manual	-	3
11	212-1801	DECAL, Danger, Stand Clear When T/G Raise	-	3
12	212-1820	DECAL, Danger, Towing, In Cab	-	2
13	212-1841	DECAL, Safety Requirements, ANSI	-	1
14	212-1902	DECAL, Caution, Do Not Use Riding Step	-	1
15	212-1911	DECAL, Caution, Stand Clear When Panel in Motion	-	1
16	212-1915	DECAL, Warranty Parts	-	1
17	212-1918	DECAL, Safety Instructions	-	1
18	212-2092	DECAL, Caution, No Newspaper	-	2
19	212-2093	DECAL, Newspaper Only	-	2
20	212-2094	DECAL, Co-Mix Only	-	2
21	212-2228	DECAL, Proximity Switch, Adjustment	-	3
23	212-2689	DECAL, Flag	-	1
24	212-2875	DECAL, Warning-Battery Disconnect Switch	-	1

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SECTION 3
CONTROLS

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CAB CONTROL KITS

254-4738-001, 254-4738-002, 254-4738-003, 254-4738-004, 254-4738-005, 254-4738-006, 254-4738-007, 254-4738-008, 254-4738-009, 254-4738-011

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4738-001	KIT, Cab Control, Autocar WXLL (See 701-8881-005 in SM 10)	A	REF
-	254-4738-002	KIT, Cab Control, Autocar ACX (See 701-8881-005 in SM 10)	B	REF
-	254-4738-003	KIT, Cab Control, CCC (See 701-8881-005 in SM 10)	C	REF
-	254-4738-004	KIT, Cab Control, Autocar Mack MRU (See 701-8881-005 in SM 10)	D	REF
-	254-4738-005	KIT, Cab Control, Mack LEU (See 701-8881-005 in SM 10)	E	REF
-	254-4738-006	KIT, Cab Control, Condor (See 701-8881-005 in SM 10)	F	REF
-	254-4738-007	KIT, Cab Control, Peterbilt COE (See 701-8881-005 in SM 10)	G	REF
-	254-4738-008	KIT, Cab Control, Non-RPM, International (See 701-8881-005 in SM 10)	H	REF
-	254-4738-009	KIT, Cab Control, RPM, International (See 701-8881-005 in SM 10)	J	REF
-	254-4738-011	KIT, Cab Control, Mack Granite (See 701-8881-005 in SM 10)	K	REF
-1	372-2608	INSTALLATION, Pneumatic (See Section 4)	-	1
-2	372-5570	INSTALLATION, Harness, Battery Box (See Pg. 3009)	-	1
-3	108-7790	HOLDER, Fuse, In-Line, Mini Blade	-	2
-4	109-0245	PLC, Program (See SM 9)	-	1
-5	254-4568-001	ASSEMBLY, Control, Bucket (See Pg. 3013)	A-F, H, J, K	1
-5a	254-4568-001	ASSEMBLY, Control, Bucket (See Pg. 3013)	G	2
-6	254-4733-001	INSTALLATION, 40 I/O PLC, Autocar WXLL (See Pg. 3019)	A	1
-6a	254-4733-002	INSTALLATION, 40 I/O PLC, ACX (See Pg. 3019)	B	1
-6b	254-4733-003	INSTALLATION, 40 I/O PLC, CCC (See Pg. 3019)	C	1
-6c	254-4733-004	INSTALLATION, 40 I/O PLC, Mack MRU (See Pg. 3021)	D	1
-6d	254-4733-005	INSTALLATION, 40 I/O PLC, Mack LEU (See Pg. 3021)	E	1
-6e	254-4733-006	INSTALLATION, 40 I/O PLC, Condor (See Pg. 3023)	F	1
-6f	254-4733-007	INSTALLATION, 40 I/O PLC, Peterbilt COE (See Pg. 3019)	G	1
-6g	254-4733-015	INSTALLATION, 40 I/O PLC, International (See Pg. 3021)	H, J	1
-6h	254-4733-017	INSTALLATION, 40 I/O PLC, Mack Granite (See Pg. 3023)	K	1
-7	254-4734-001	INSTALLATION, Control Panel, WXLL (See Pg. 3025)	A	1
-7a	254-4734-002	INSTALLATION, Control Panel, ACX (See Pg. 3025)	B	1
-7b	254-4734-003	INSTALLATION, Control Panel CCC (See Pg. 3025)	C	1
-7c	254-4734-004	INSTALLATION, Control Panel, MRU (See Pg. 3025)	D	1
-7d	254-4734-005	INSTALLATION, Control Panel, LEU (See Pg. 3025)	E	1
-7e	254-4734-006	INSTALLATION, Control Panel, Condor (See Pg. 3025)	F	1
-7f	254-4734-007	INSTALLATION, Control Panel, Peterbilt COE (See Pg. 3025)	G	1
-7g	254-4734-010	INSTALLATION, Control Panel, International (See Pg. 3025)	H, J	1
-7h	254-4734-009	INSTALLATION, Control Panel, Mack Granite (See Pg. 3025)	K	1
-8	254-4735	INSTALLATION, Proximity Switch, Body Down (See Pg. 3027)	-	1
-9	254-4737	BOX, Control, Non-Pedestal Mount (See Pg. 3027)	A	1
-9a	254-4737-001	PANEL, Control, ACX (See Pg. 3035) (See 701-8882-003 in SM 10)	B	1
-9b	254-4740-026	BOX, Control, Pedestal Mount (See Pg. 3037)	C, H, J, K	1
-9c	254-4740-027	BOX, Control, Non-Pedestal Mounting (See Pg. 3037)	D, E, F, G	1
-10	263-1246-009	HARNESS, Splitter, Input, Bucket (See SM 10)	H	1
-11	263-1471-004	HARNESS, Chassis Interface WXLL (See SM 10)	A	1
-11a	263-1471-006	HARNESS, Chassis Interface, ACX (See Pg. 3041) (See SM 10)	B	1
-11b	263-1471-001	HARNESS, Chassis Interface CCC (See SM 10)	C	1
-11c	263-1471-007	HARNESS, Chassis Interface, MRU (See Pg. 3043) (See SM 10)	D	1
-11d	263-1471-005	HARNESS, Chassis Interface, LEU (See SM 10)	E	1
-11e	263-1471-002	HARNESS, Chassis Interface, Condor (See SM 10)	F	1

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CAB CONTROL KITS

254-4738-001, 254-4738-002, 254-4738-003, 254-4738-004, 254-4738-005, 254-4738-006, 254-4738-007, 254-4738-008, 254-4738-009, 254-4738-011

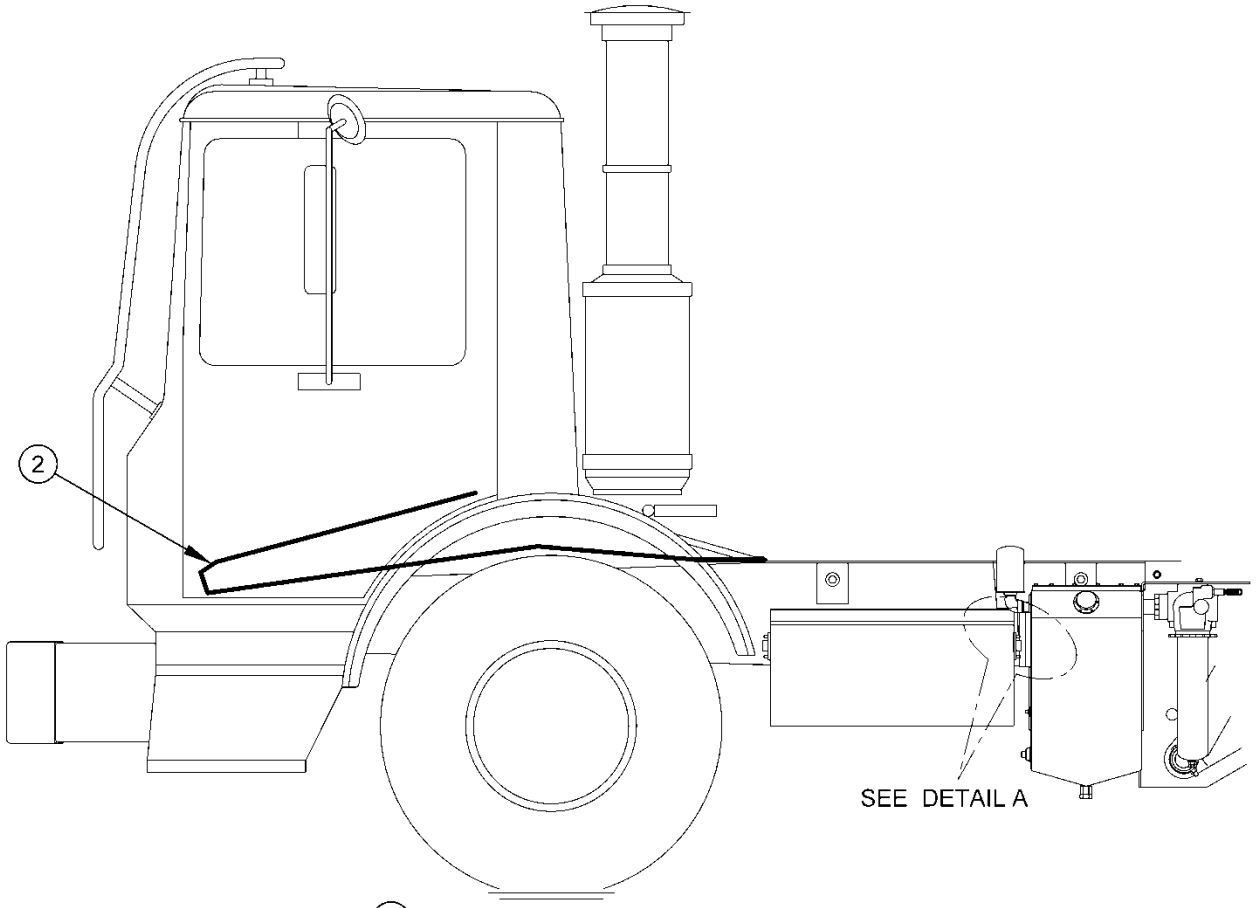
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-11f	263-1471-012	HARNESS, Chassis Interface, Cab Over, Peterbilt (See SM 10)	G	1
-11g	263-1471-008	HARNESS, Chassis Interface, Non-RPM, International (See SM 10)	H	1
-11h	263-1471-009	HARNESS, Chassis Interface, RPM, International (See Pg. 3045) (See SM 10)	J	1
-11j	263-1471-003	HARNESS, Chassis Interface, Granite (See Pg. 3047) (See SM 10)	K	1
-12	263-1478-003	HARNESS, Cab to Body, Autocar WXLL (See Pg. 3049) (See SM 10)	A	1
-12a	263-1478-004	HARNESS, Cab to Body, Autocar ACX (See Pg. 3051) (See SM 10)	B	1
-12b	263-1478-001	HARNESS, Chassis Interface, CCC (See Pg. 3053) (See SM 10)	C	1
-12c	263-1478-005	HARNESS, Cab to Body, Mack MRU (See Pg. 3055) (See SM 10)	D	1
-12d	263-1478-006	HARNESS, Cab to Body, Mack LEU (See Pg. 3057) (See SM 10)	E	1
-12e	263-1478-007	HARNESS, Cab to Body, Condor (See Pg. 3059) (See SM 10)	F	1
-12f	263-1478-008	HARNESS, Cab to Body, Peterbilt COE (See Pg. 3061) (See SM 10)	G	1
-12g	263-1478-015	HARNESS, Cab to Body, International (See Pg. 3063) (See SM 10)	H, J	1
-12h	263-1478-017	HARNESS, Cab to Body, Mack Granite (See Pg. 3065) (See SM 10)	K	1
-13	311-2830-001	BRACKET, Connector, Bulkhead	-	1

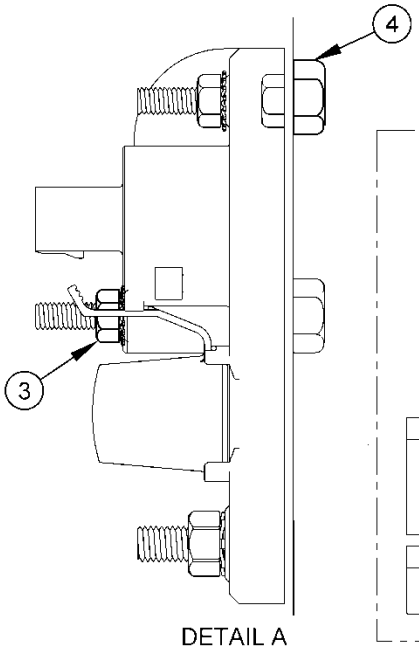
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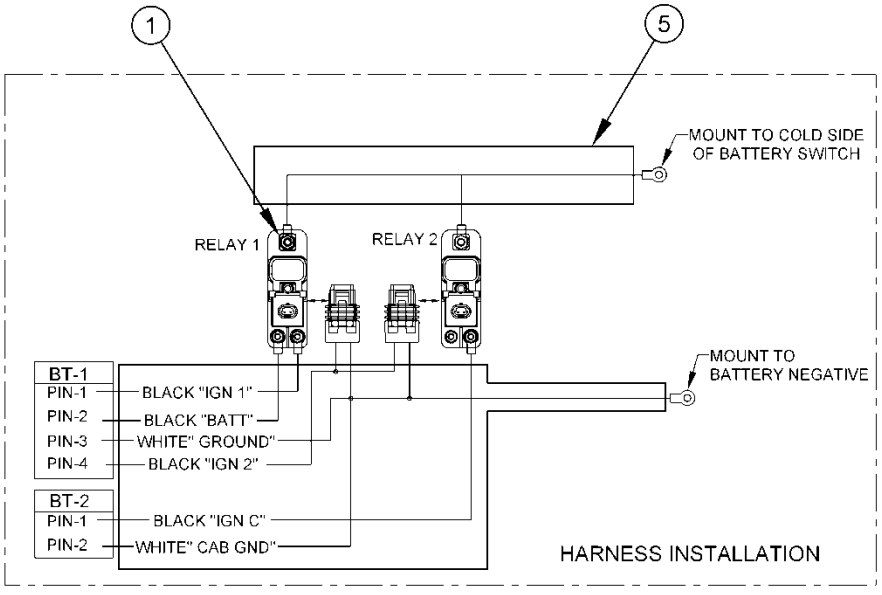
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BATTERY BOX HARNESS INSTALLATION

372-5570







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BATTERY BOX HARNESS INSTALLATION

372-5570

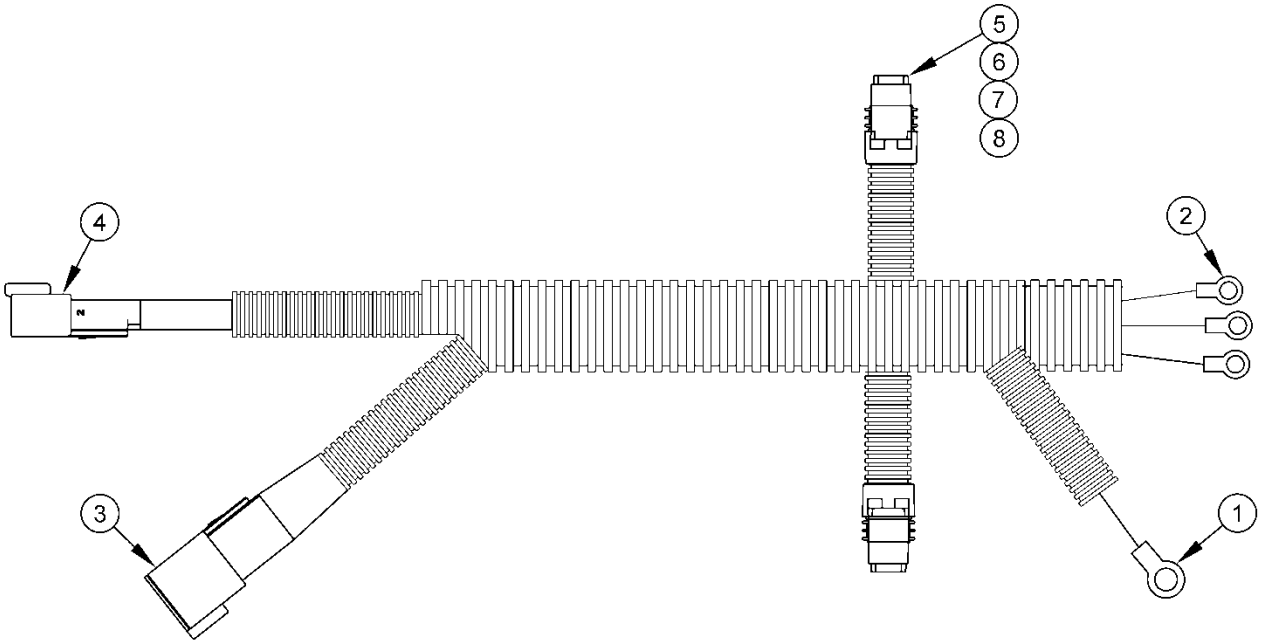
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5570	INSTALLATION, Harness, Battery Box	-	REF
1	108-8458	RELAY, Power Module	-	2
2	263-1517	HARNESS, Battery Box (See Pg. 3011) (See SM 10)	-	1
3	FSP220700	NUT, 1/4”-20	-	4
4	FSP070730	HHCS, 1/4”-20 x 2”, Gr. 5, Plated	-	4
5	263-1518	HARNESS, Battery (See SM 10)	-	1

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BATTERY BOX HARNESS

263-1517



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BATTERY BOX HARNESSS

263-1517

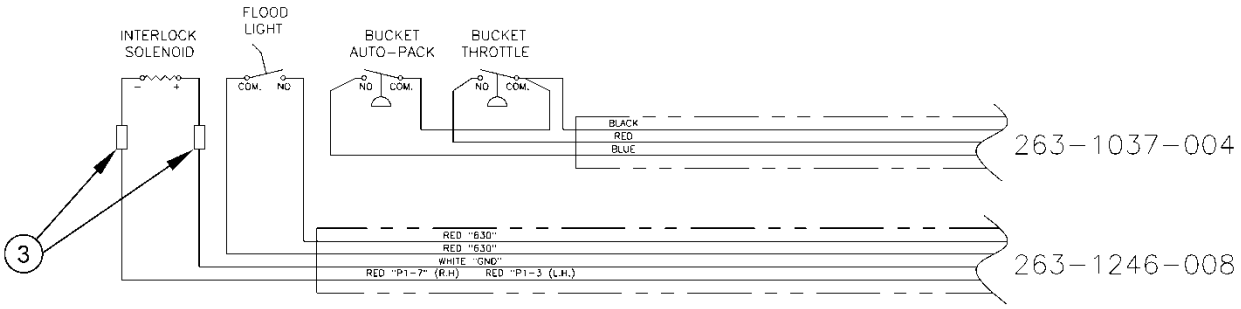
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-	263-1517	HARNESS, Battery Box (See SM 10)	-	REF
1	108-8551-006	RING, Terminal	-	1
2	108-8551-004	RING, Terminal	-	3
3	108-8411-003	RECEPTACLE, 4 Way, Deutsch DTP Series	-	1
4	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	1
5	108-8509-002	PLUG, Housing, 2 Way, Black	-	2
6	108-8509-012	RECEPTACLE, Contacts, 18-16 AWG	-	4
7	108-8509-021	SEAL, Cable	-	4
8	108-8509-032	TPA, 2 Way	-	2

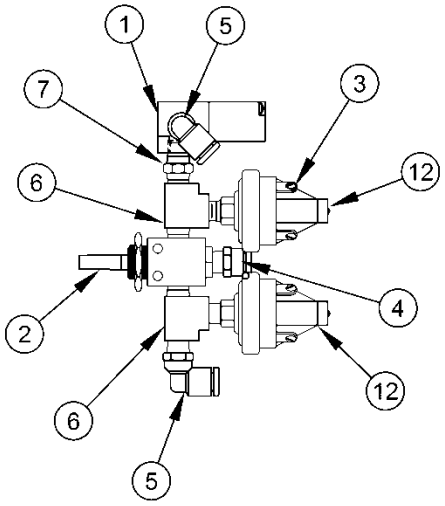
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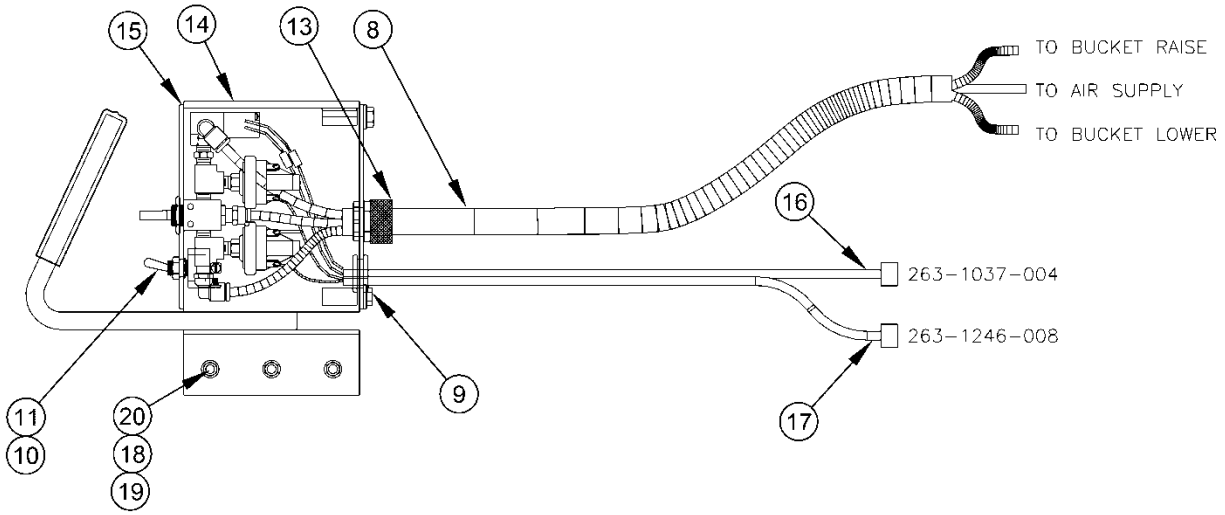
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BUCKET CONTROL ASSEMBLY

254-4568-001







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BUCKET CONTROL ASSEMBLY

254-4568-001

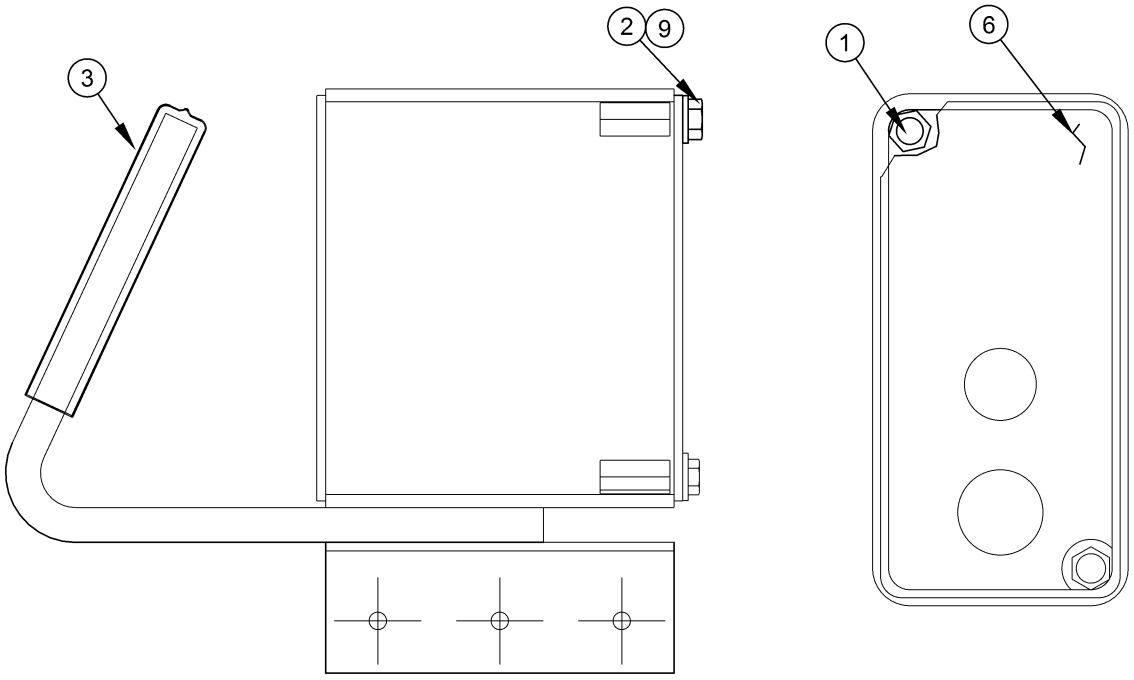
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4568-001	ASSEMBLY, Control, Bucket	-	REF
1	031-5724-012	SOLENOID, Air	-	1
2	031-5785	SWITCH, Toggle, Air	-	1
3	054-7350	TUBING, Shrink, 5/16”	-	3”
4	054-8468-003	FITTING, Airline, 1/8”-1/4” NPT	-	1
5	054-8470-003	CONNECTOR, Elbow, Airline	-	2
6	054-8740-001	TEE, Street, Brass, 1/8”	-	2
7	054-8927-001	NIPPLE, Brass, Hex, 1/8” NPT	-	1
8	054-9544	TUBE, Multi, 3-Line, 1/4"	-	10’
9	108-0472	GROMMET, Rubber	-	1
10	108-1814	SWITCH, Toggle, SPST, 12 V DC	-	1
11	108-2280	BOOT, Toggle Switch	-	1
12	108-5358	SWITCH, Pressure, Air	-	2
13	108-6038	CONTAINER, Strain Relief	-	1
14	151-4443	WELDMENT, Control, Bucket (See Pg. 3015)	-	1
15	212-2418-003	DECAL, Control, Bucket	-	1
16	263-1037-004	HARNESS, Body to RH Box (See SM 10)	-	1
17	263-1246-008	HARNESS, Control, Bucket (See SM 10)	-	1
18	FSP510700	WASHER, Flat, 1/4" Std., Plated	-	6
19	FSP230700	NUT, Lock, 1/4"-20, Gr. 5, Plated	-	6
20	FSP070740	HHCS, 1/4’’-20 x 3’’, Gr. 5, Plated	-	6

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BUCKET CONTROL WELDMENT

151-4443



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BUCKET CONTROL WELDMENT

151-4443

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	151-4443	WELDMENT, Control, Bucket	-	REF
1	047-2367	NUT, Cover, Mounting	-	2
2	055-1391-002	WASHER, 5/16”, Hardened Steel, Gr. 8, Zinc Plated	-	2
3	070-1451	HANDLE, Grip	-	1
-4	112-9581-002	HANDLE (Item Welded)	-	1
-5	112-9894-001	BRACKET, Control Box (Item Welded)	-	1
6	234-0873	COVER, Control, Bucket	-	1
-7	234-0874	PLATE, Control, Bucket, Face (Item Welded)	-	1
-8	311-0672	BRACKET, Control, Bucket, Mount (Item Welded)	-	1
9	FS070815	HHCS, 5/16”-18 x 3/4”, Gr. 5, Plated	-	2

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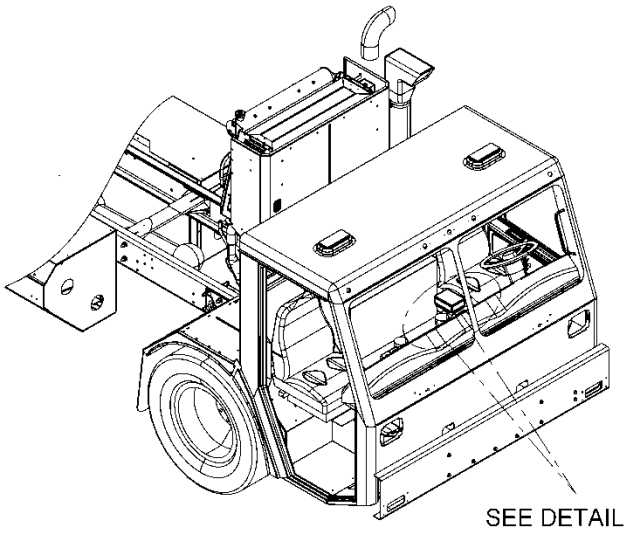
PLC INSTALLATIONS

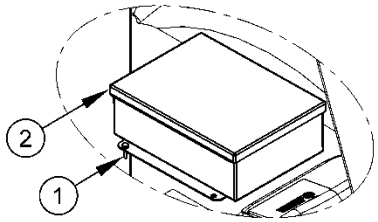
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40 I/O PLC INSTALLATIONS

254-4733-001, 254-4733-002, 254-4733-007

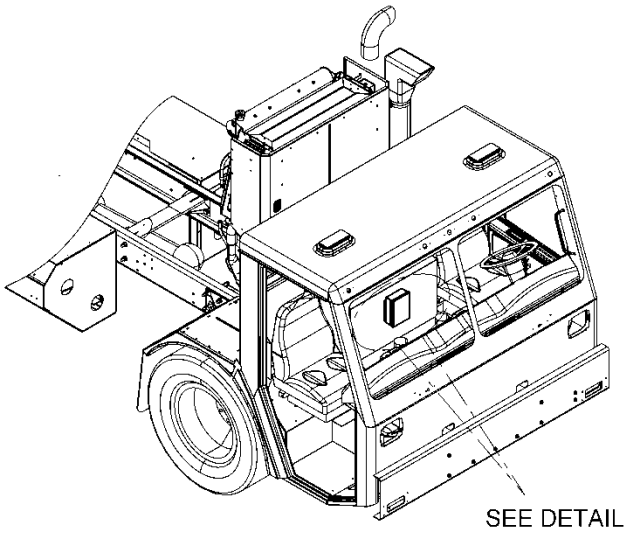


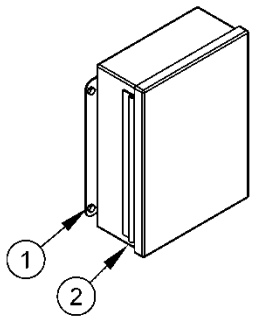


DETAIL A

CCC 40 I/O PLC INSTALLATION

254-4733-003





DETAIL A

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40 I/O PLC INSTALLATIONS

254-4733-001, 254-4733-002, 254-4733-007

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4733-001	INSTALLATION, 40 I/O PLC, Autocar WXLL	A	REF
-	254-4733-002	INSTALLATION, 40 I/O PLC, ACX	B	REF
-	254-4733-007	INSTALLATION, 40 I/O PLC, Peterbilt COE	C	REF
1	047-2151-001	SCREW, Tek, #12-14 x 3/4”	A, C	4
2	254-4466-040	ASSEMBLY, PLC, Sourcing, 40 I/O, 12V (See SM 9)	-	1

CCC 40 I/O PLC INSTALLATION

254-4733-003

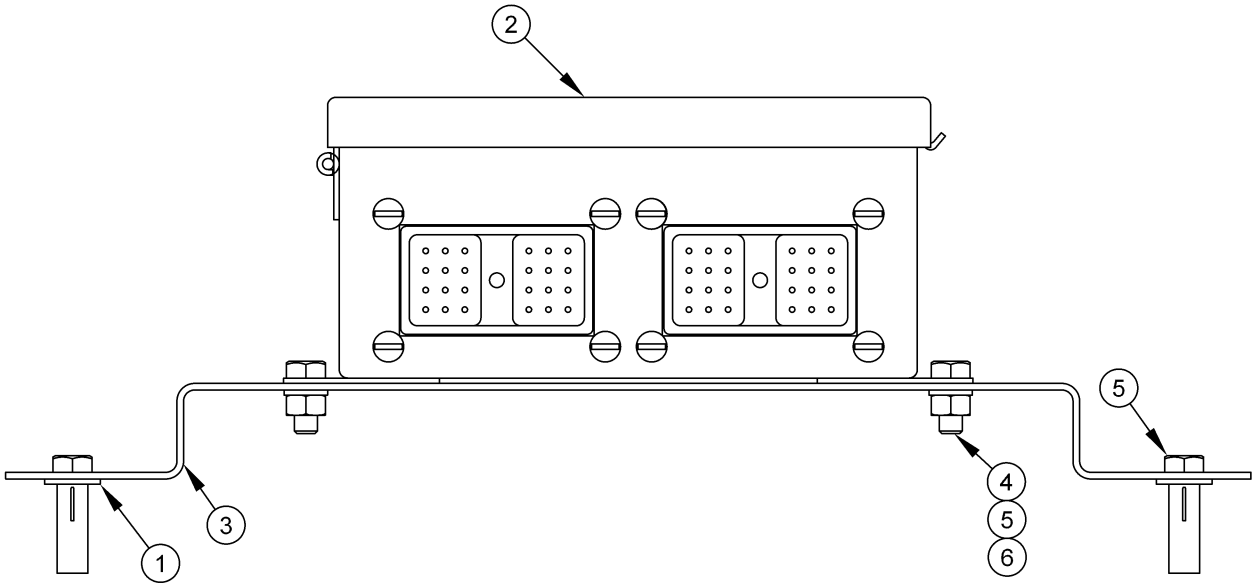
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4733-003	INSTALLATION, 40 I/O PLC, CCC	-	REF
1	047-2151-001	SCREW, Tek, #12-14 x 3/4”	-	4
2	254-4466-040	ASSEMBLY, PLC, Sourcing, 40 I/O, 12V (See SM 9)	-	1

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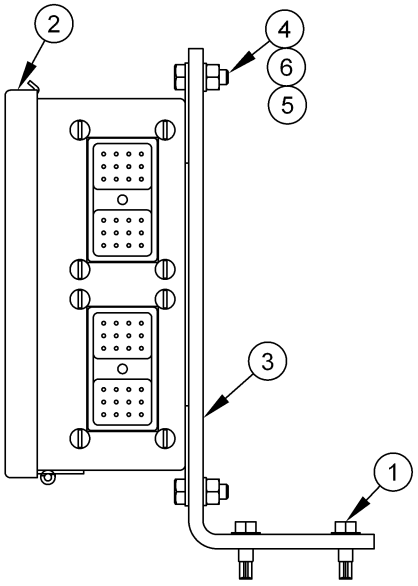
MACK MRU 40 I/O PLC INSTALLATION

254-4733-004



PLC INSTALLATIONS

254-4733-005, 254-4733-015



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MACK MRU 40 I/O PLC INSTALLATION

254-4733-004

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4733-004	INSTALLATION, 40 I/O PLC, Mack MRU	-	REF
1	047-2603	RIVNUT, 1/4”-20	-	4
2	254-4466-040	ASSEMBLY, PLC, Sourcing, 40 I/O, 12V (See SM 9)	-	1
3	311-4760-060	BRACKET, Mount, PLC, 60 I/0, Mack MRU	-	1
4	FSP550700	WASHER, Lock, 1/4”, Plated	-	4
5	FSP070713	HHCS, 1/4"-20 x 5/8”, Gr. 5, Plated	-	8
6	FSP280700	NUT, Hex, 1/4”-20, Plated	-	4

PLC INSTALLATIONS

254-4733-005, 254-4733-015

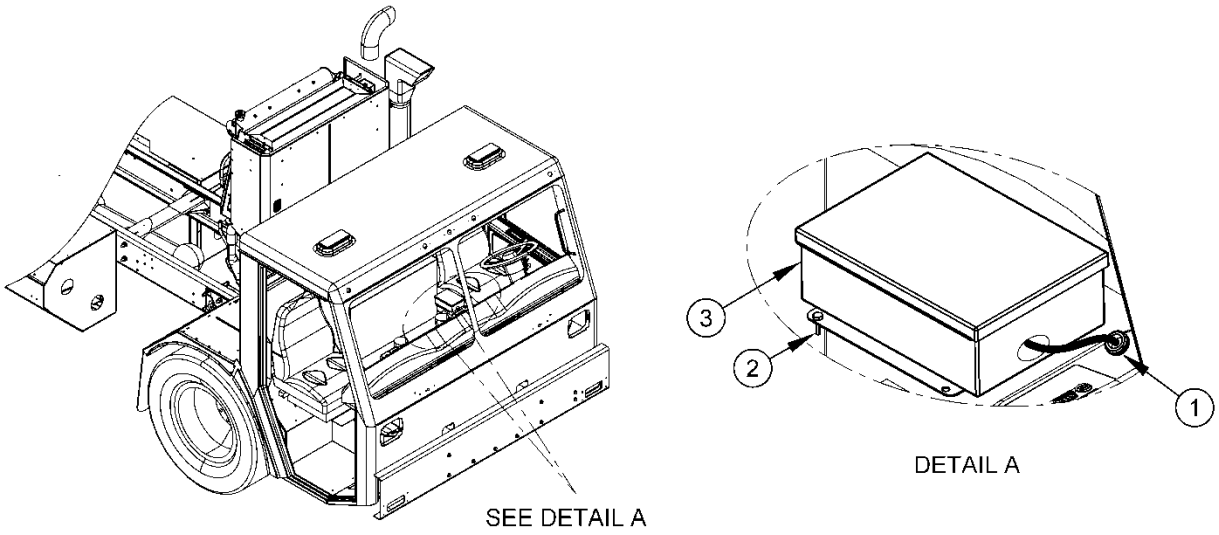
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4733-005	INSTALLATION, 40 I/O PLC, Mack LEU	A	REF
-	254-4733-015	INSTALLATION, 40 I/O PLC, International	B	REF
1	047-2151-001	SCREW, Tek, #12-14 x 3/4”	A	6
-1a	047-2151-011	SCREW, Tek, 1/4”-14 x 1”	B	4
2	254-4466-040	ASSEMBLY, PLC, Sourcing, 40 I/O, 12V (See SM 9)	-	1
3	311-1459-001	BRACKET, Mount, PLC 40 I/0, Mack LEU	A	1
-3a	311-1459-002	BRACKET, Mount, PLC 40 I/0, Horizontal	B	1
4	FSP070715	HHCS, 1/4”-20 x 3/4”, Gr. 5, Plated	B	4
5	FSP280700	NUT, Hex, 1/4”-20, Plated	B	4
6	FSP550700	WASHER, Lock, 1/4”, Plated	B	4

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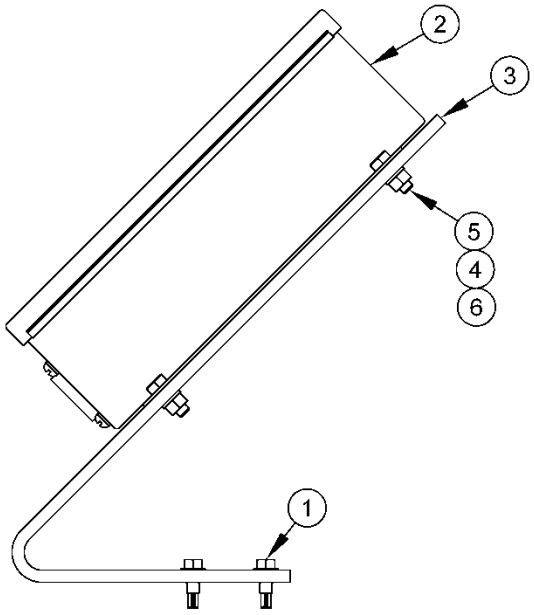
CONDOR 40 I/O PLC INSTALLATION

254-4733-006



MACK GRANITE 40 I/O PLC INSTALLATION

254-4733-017



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CONDOR 40 I/O PLC INSTALLATION

254-4733-006

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4733-006	INSTALLATION, 40 I/O PLC, Condor	-	REF
1	003-4514-010	GROMMET, Rubber, Black, 2”	-	1
2	047-2151-001	SCREW, Tek, #12-14 x 3/4”	-	4
3	254-4466-040	ASSEMBLY, PLC, Sourcing, 40 I/O, 12V (See SM 9)	-	1

MACK GRANITE 40 I/O PLC INSTALLATION

254-4733-017

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4733-017	INSTALLATION, 40 I/O PLC, Mack Granite	-	REF
1	047-2151-011	SCREW, Tek, 1/4”-14 x 1”	-	4
2	254-4466-040	ASSEMBLY, PLC, Sourcing, 40 I/O, 12V (See SM 9)	-	1
3	311-1459-003	BRACKET, Mount, PLC 40 I/0, 45°	-	1
4	FSP550700	WASHER, Lock, 1/4”, Plated	-	4
5	FSP070715	HHCS, 1/4”-20 x 3/4”, Gr. 5, Plated	-	4
6	FSP280700	NUT, Hex, 1/4”-20, Plated	-	4

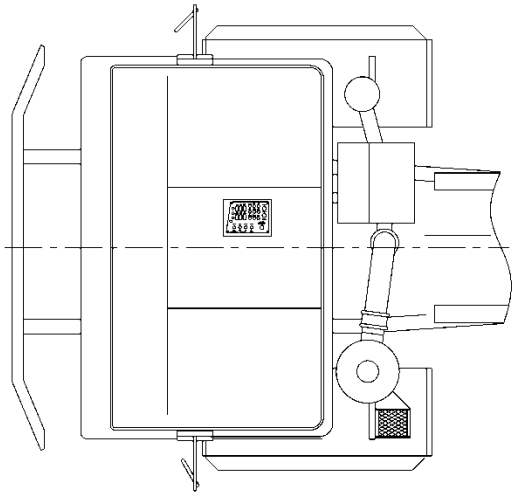
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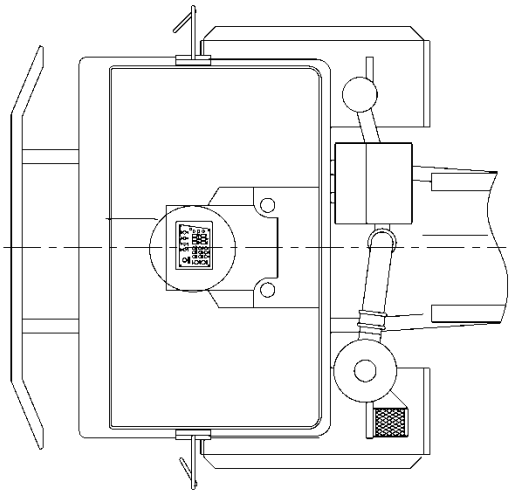
CONTROL PANEL INSTALLATIONS

254-4734-001, 254-4734-002, 254-4734-003, 254-4734-004, 254-4734-005, 254-4734-006, 254-4734-007, 254-4734-009, 254-4734-010

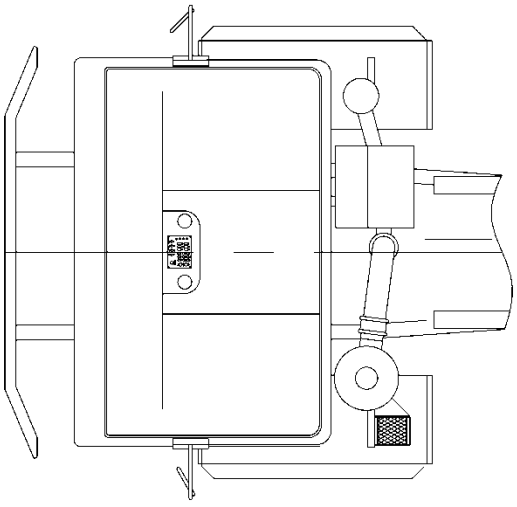
CABIN REFERENCE



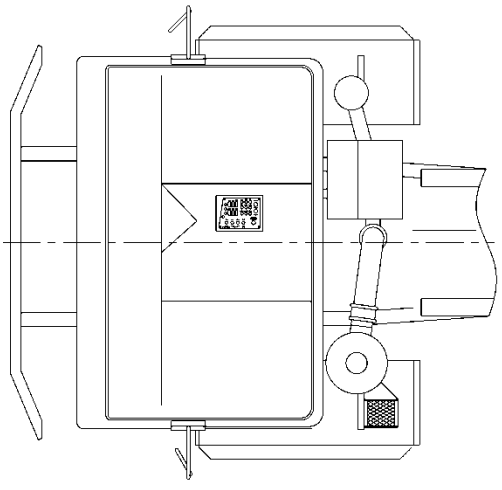
254-4734-001, 254-4734-002, 254-4734-003



254-4734-004, 254-4734-005



254-4734-006



254-4734-007, 254-4734-009, 254-4734-010

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CONTROL PANEL INSTALLATIONS

254-4734-001, 254-4734-002, 254-4734-003, 254-4734-004, 254-4734-005, 254-4734-006, 254-4734-007, 254-4734-009, 254-4734-010

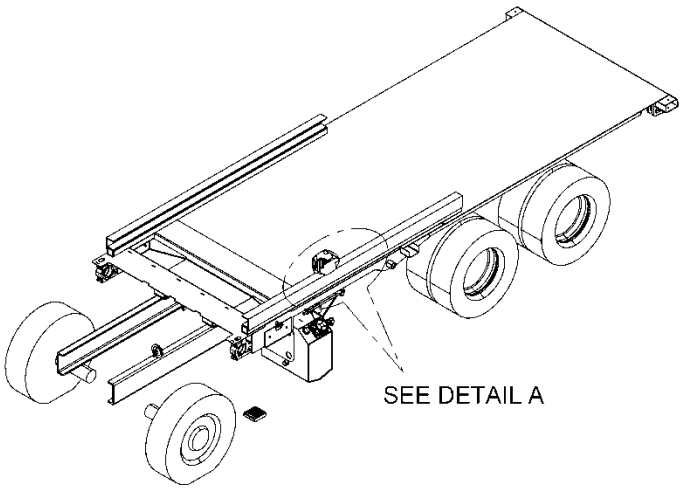
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4734-001	INSTALLATION, Control Panel, WXLL	A	REF
-	254-4734-002	INSTALLATION, Control Panel, ACX	B	REF
-	254-4734-003	INSTALLATION, Control Panel, CCC	C	REF
-	254-4734-004	INSTALLATION, Control Panel, MRU	D	REF
-	254-4734-005	INSTALLATION, Control Panel, LEU	E	REF
-	254-4734-006	INSTALLATION, Control Panel, Condor	F	REF
-	254-4734-007	INSTALLATION, Control Panel, Peterbilt COE	G	REF
-	254-4734-009	INSTALLATION, Control Panel, Mack Granite	H	REF
-	254-4734-010	INSTALLATION, Control Panel, International	J	REF

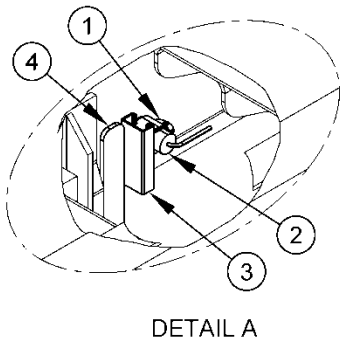
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BODY DOWN PROXIMITY SWITCH INSTALLATION

254-4735

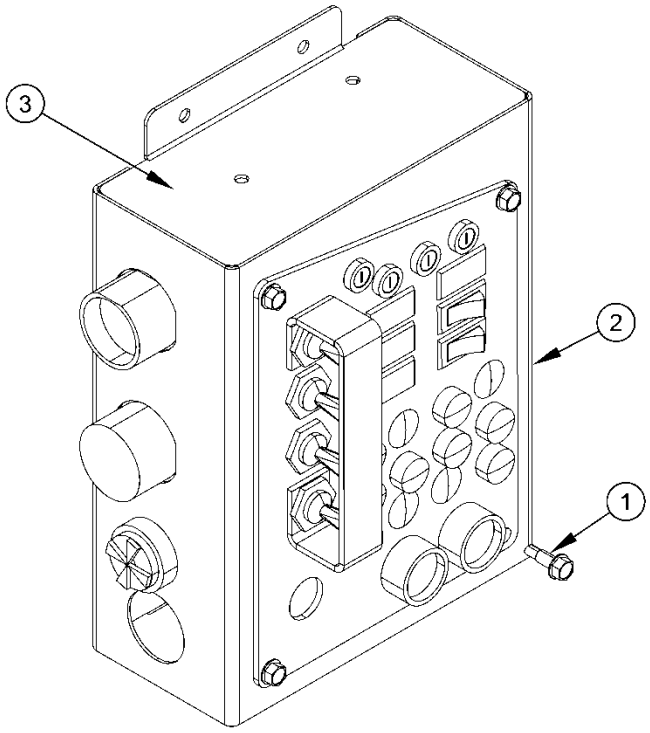




DETAIL A

NON-PEDESTAL MOUNT CONTROL BOX

254-4737



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BODY DOWN PROXIMITY SWITCH INSTALLATION
254-4735

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4735	INSTALLATION, Proximity Switch, Body, Down	-	REF
1	036-1474-008	ASSEMBLY, Clamp, Hydraulic Tubing, 1”	-	1
2	063-0109	SWITCH, Proximity, Sourcing, 30 mm	-	1
3	207-2938-015	CHANNEL, Clamp, Hyd. Tube, 4” (Item Welded)	-	1
4	311-4668	BRACKET, Proximity, Body Up (Item Welded)	-	1

NON-PEDESTAL MOUNT CONTROL BOX
254-4737

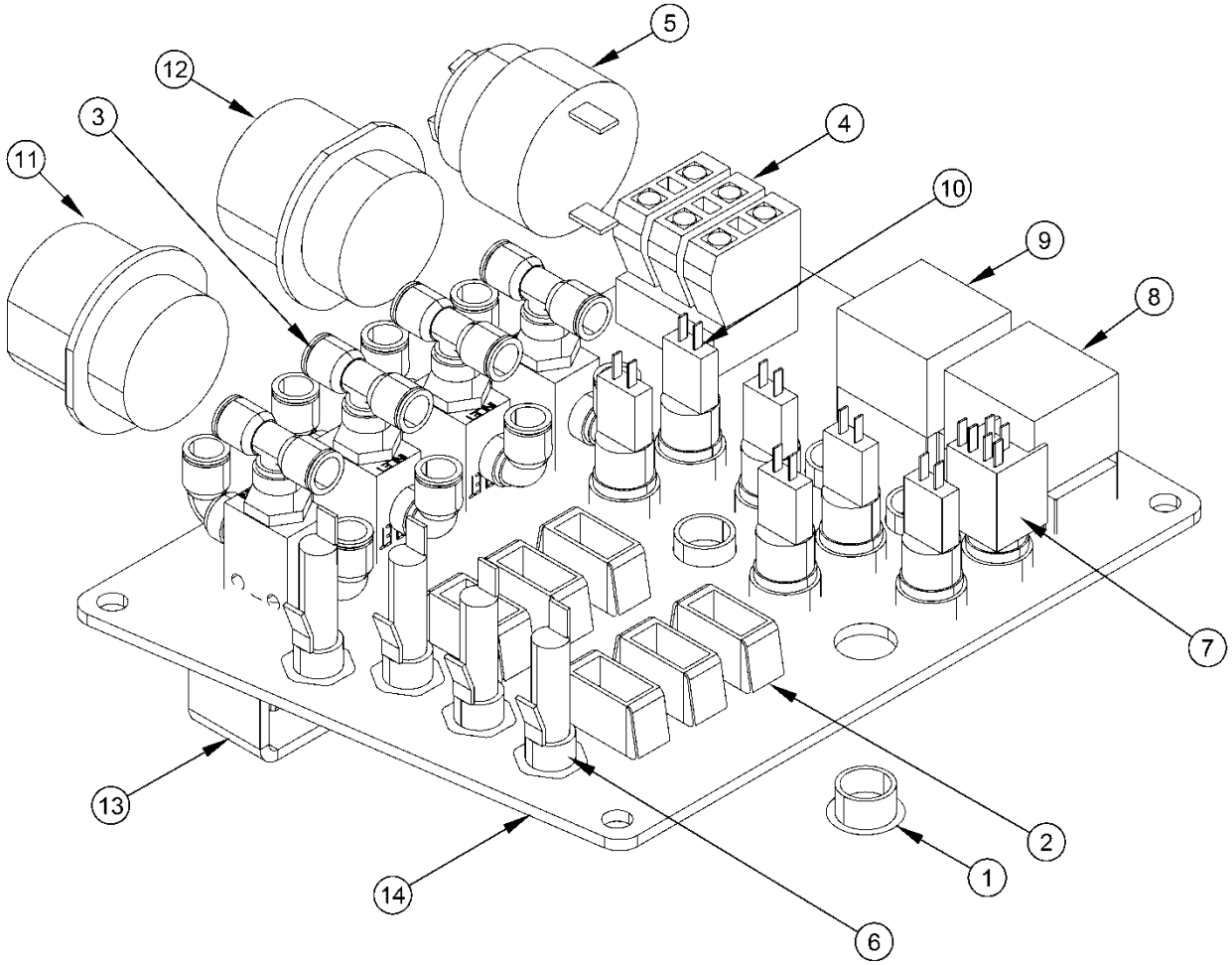
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4737	BOX, Control, Non-Pedestal Mount	-	REF
1	047-2151-011	SCREW, Tek, 1/4”-14 x 1”	-	4
2	254-4737-003	PANEL, Control, Mack 07 (See Pg. 3029)		
		(See 701-8882-003 in SM 10)	-	1
3	311-4638-003	BOX, Control, Surface Mount	-	1

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MACK CONTROL PANEL

254-4737-003



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MACK CONTROL PANEL

254-4737-003

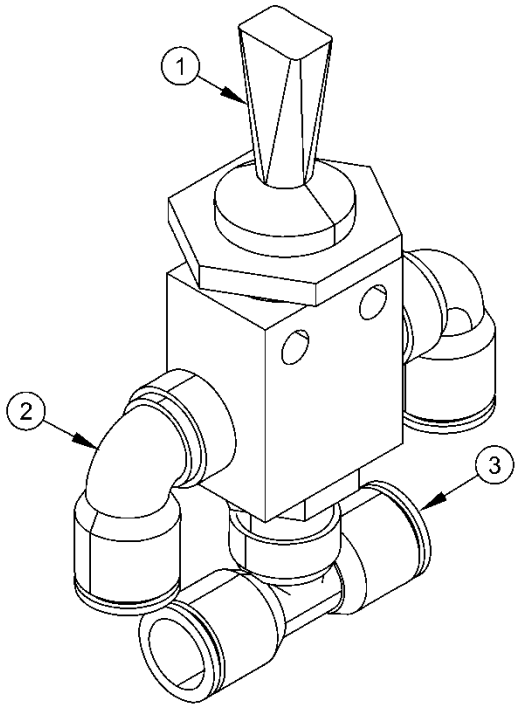
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4737-003	PANEL, Control, Mack (See 701-8882-003 in SM 10)	-	REF
1	025-0473-005	PLUG, Hole, 5/8”	-	4
2	025-0603	SWITCH, Rocker, Hole Plug	-	6
3	031-6297	ASSEMBLY, Toggle Valve, Pneumatic (See Pg. 3031)	-	4
4	108-4433	SWITCH, Stop, Illuminated, Red (See Pg. 3031)	-	1
5	108-7766	ALARM, Audible	-	1
6	108-7769	HOLDER, Fuse, 5 x 20 mm	-	4
7	108-7858-001	PUSH BUTTON, NO, Illuminated, Red	-	1
8	108-8253	ASSEMBLY, Push Button 2, NO, Illuminated, Green (See Pg. 3033)	-	1
9	108-8254	ASSEMBLY, Push Button 2, NO, Illuminated, Yellow (See Pg. 3033)	-	1
10	115-1256-001	INDICATOR, LED, Red, 16 mm. (See SM 7)	-	6
11	263-1479-003	HARNESS, Control Box (See SM 10)	-	1
12	263-1479-004	HARNESS, Control Box (See SM 10)	-	1
13	311-0131	GUARD, Bracket, Valve, Air Toggle	-	1
14	311-4396-001	PANEL, Control, Mack	-	1

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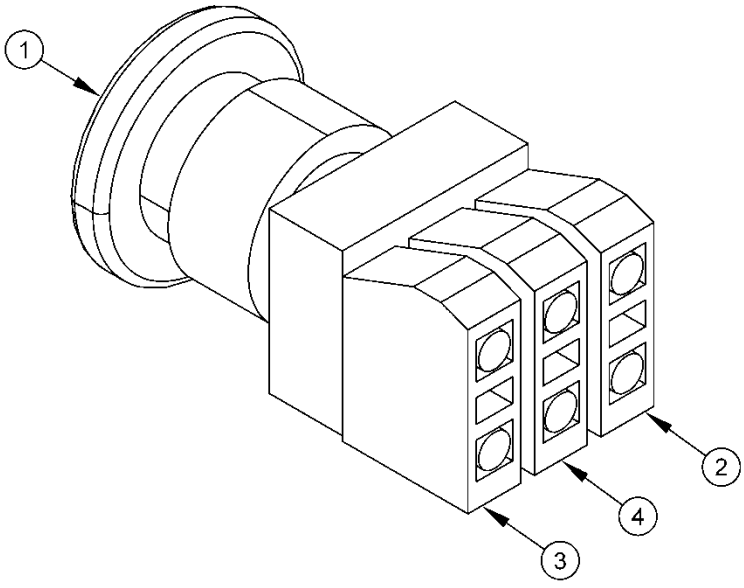
PNEUMATIC TOGGLE VALVE FITTING ASSEMBLY

031-6297



RED ILLUMINATED STOP SWITCH

108-4433



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PNEUMATIC TOGGLE VALVE FITTING ASSEMBLY

031-6297

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6297	ASSEMBLY, Valve, Pneumatic Toggle Fitting	-	REF
1	031-5785	SWITCH, Toggle, Air	-	1
2	054-8470-003	ELBOW, Connector, Air Line	-	2
3	054-8471-003	TEE, Connector, Air Line	-	1

RED ILLUMINATED STOP SWITCH

108-4433

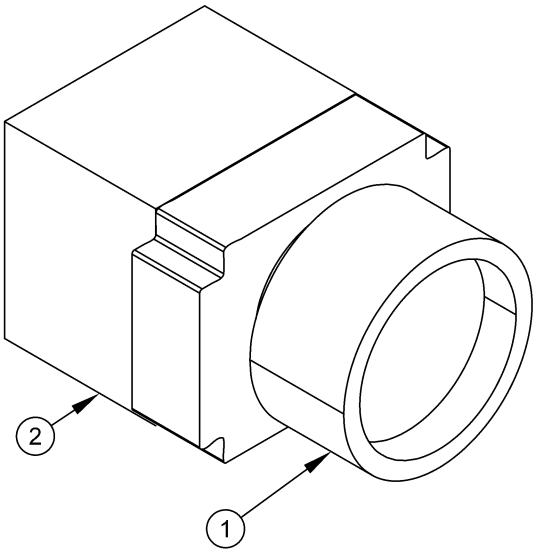
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-4433	SWITCH, Stop, Illuminated, Red	-	REF
1	108-7631-001	SWITCH, Stop, Illuminated, Red	-	1
2	108-7631-002	BLOCK, Contact, NC	-	1
3	108-7631-003	BLOCK, Contact, Push Button, Base, w/NC	-	1
4	108-7631-004	MODULE, LED Light, 24 V	-	1

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NO 2 PUSH BUTTON ASSEMBLIES

108-8253, 108-8254



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NO 2 PUSH BUTTON ASSEMBLIES

108-8253, 108-8254

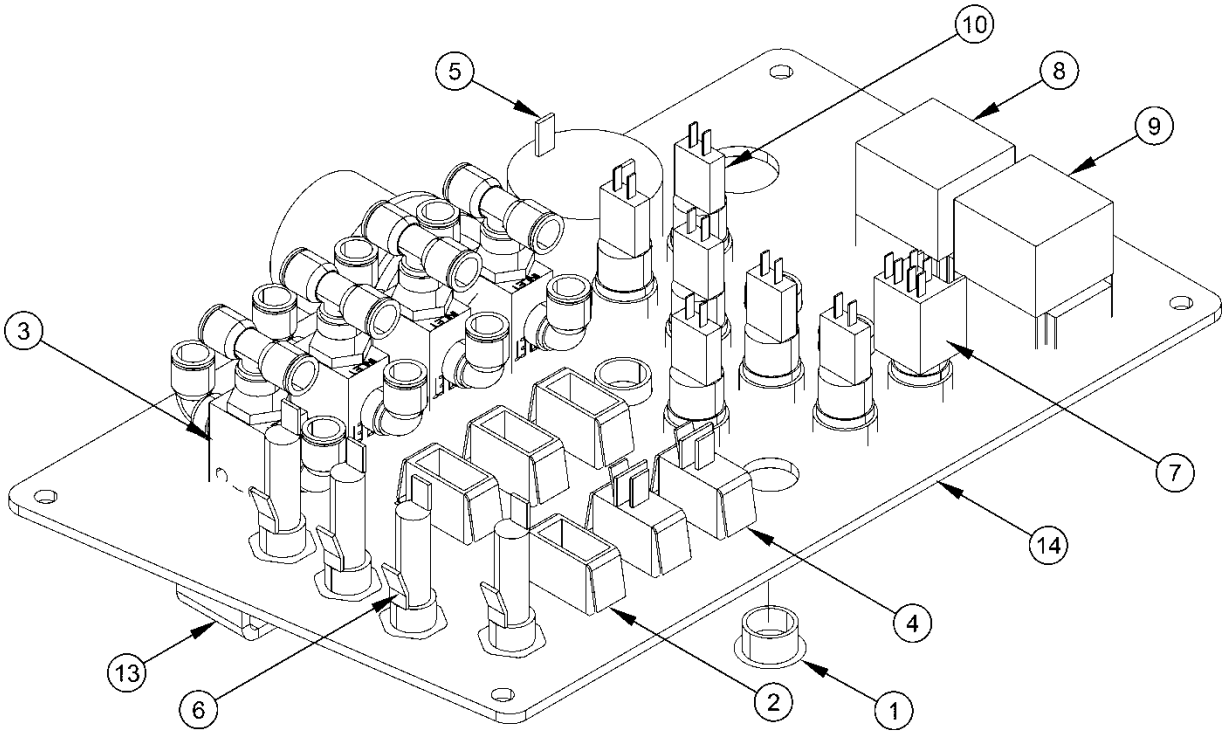
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-8253	ASSEMBLY, 2 Push Button, NO, Illuminated, Green	A	REF
-	108-8254	ASSEMBLY, 2 Push Button, NO, Illuminated, Yellow	B	REF
1	108-8253-001	BUTTON, Push, Illuminated, Green	A	1
-1a	108-8254-001	BUTTON, Push, Illuminated, Yellow	B	1
2	108-8253-002	BLOCK, Contact 2, NO, Illuminated	A	1
-2a	108-8254-002	BLOCK, Contact 2, NO, Illuminated	B	1

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ACX CONTROL PANEL

254-4737-001



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ACX CONTROL PANEL

254-4737-001

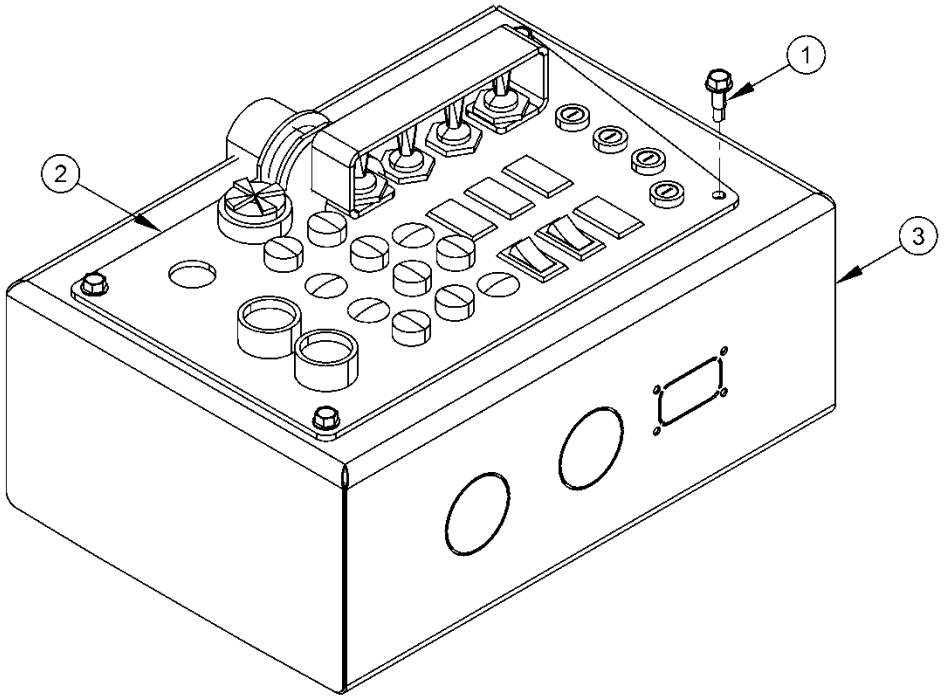
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4737-001	PANEL, Control, ACX (See 701-8882-003 in SM 10)	-	REF
1	025-0473-005	PLUG, Hole, 5/8”	-	4
2	025-0603	SWITCH, Rocker, Hole Plug	-	4
3	031-6297	ASSEMBLY, Toggle Valve, Pneumatic (See Pg. 3031)	-	4
4	108-7760-001	SWITCH, Rocker	-	2
5	108-7766	ALARM, Audible	-	1
6	108-7769	HOLDER, Fuse, 5 x 20 mm	-	4
7	108-7858-001	PUSH BUTTON, NO, Illuminated, Red	-	1
8	108-8253	ASSEMBLY, Push Button 2, NO, Illuminated, Green (See Pg. 3033)	-	1
9	108-8254	ASSEMBLY, Push Button 2, NO, Illuminated, Yellow (See Pg. 3033)	-	1
10	115-1256-001	INDICATOR, LED, Red, 16 mm. (See SM 7)	-	6
-11	263-1479-003	HARNESS, Control Box (See SM 10)	-	1
-12	263-1479-004	HARNESS, Control Box (See SM 10)	-	1
13	311-0131	GUARD, Bracket, Valve, Air Toggle	-	1
14	311-4396-002	PANEL, Control, ACX	-	1

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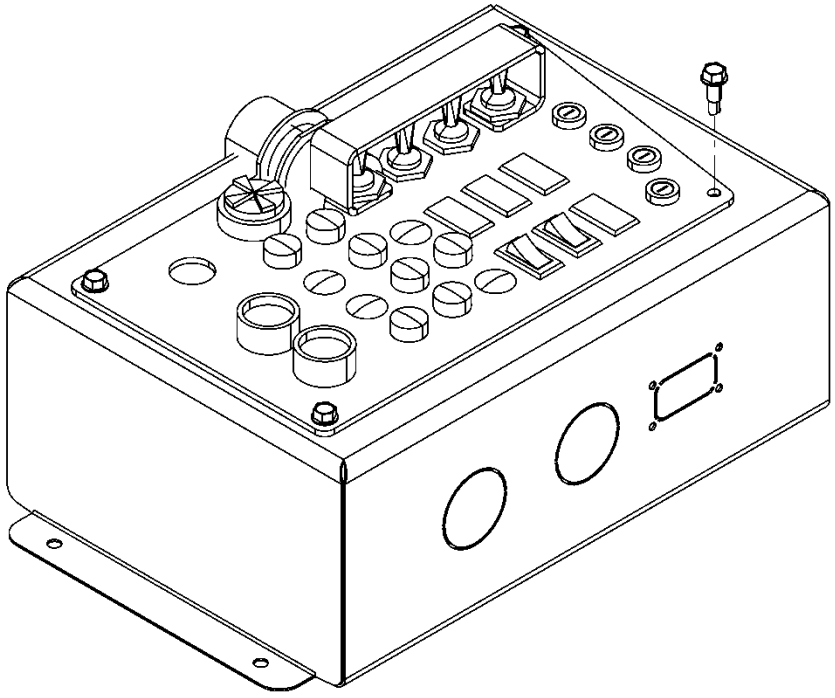
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CONTROL BOX ASSEMBLIES

254-4740-026, 254-4740-027



254-4740-026



254-4740-027

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CONTROL BOX ASSEMBLIES

254-4740-026, 254-4740-027

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	254-4740-026	ASSEMBLY, Control Box, Pedestal Mount	A	REF
-	254-4740-027	ASSEMBLY, Control Box, Non-Pedestal Mount	B	REF
1	047-2151-011	SCREW, Tek, 1/4”-14 x 1”	-	5
2	254-4737-001	PANEL, Control, ACX (See Pg. 3035) (See 701-8882-003 in SM 10)	-	1
3	311-4662-003	BRACKET, Control Box, Base	A	1
-3a	311-4662-004	BRACKET, Control Box, Base	B	1

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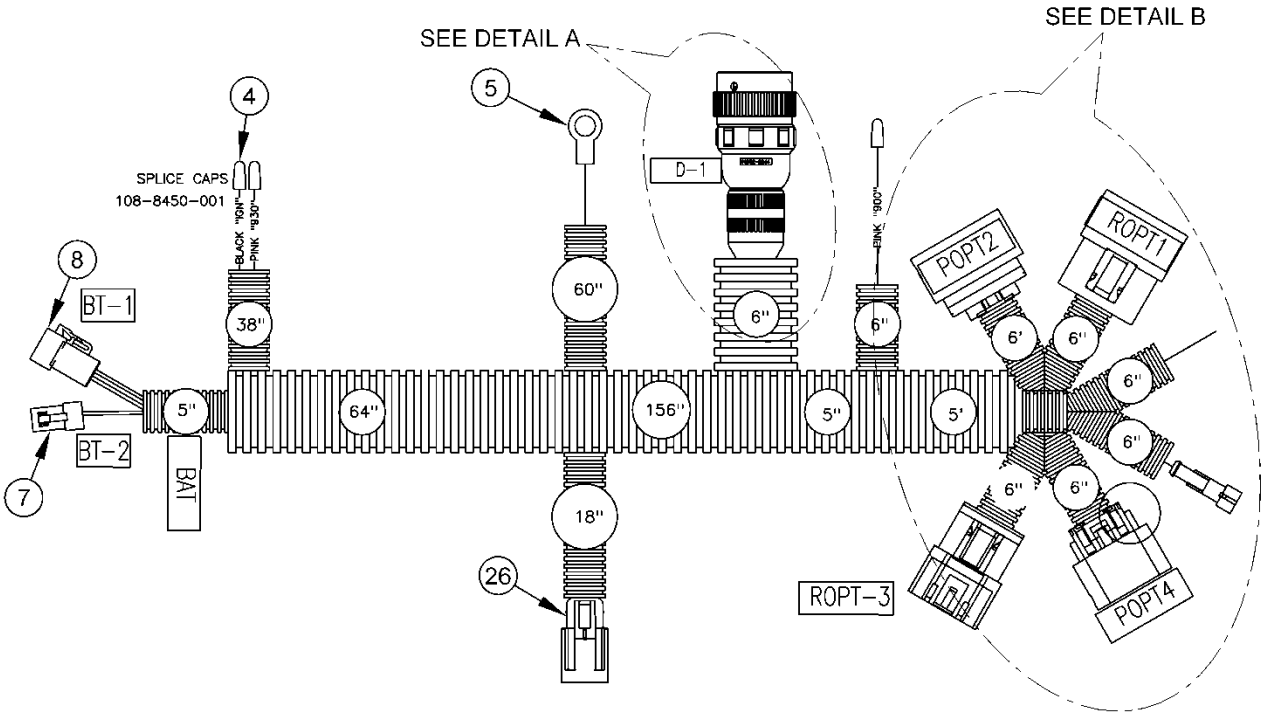
CHASSIS INTERFACE HARNESS

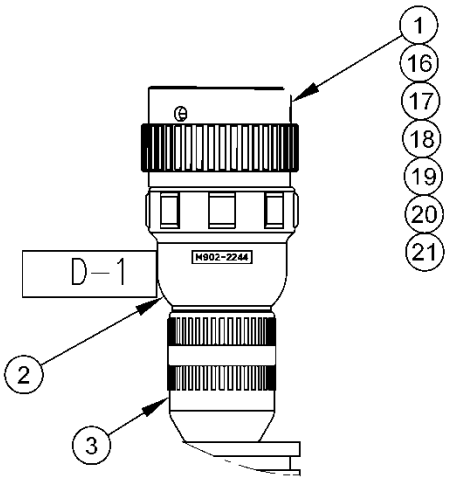
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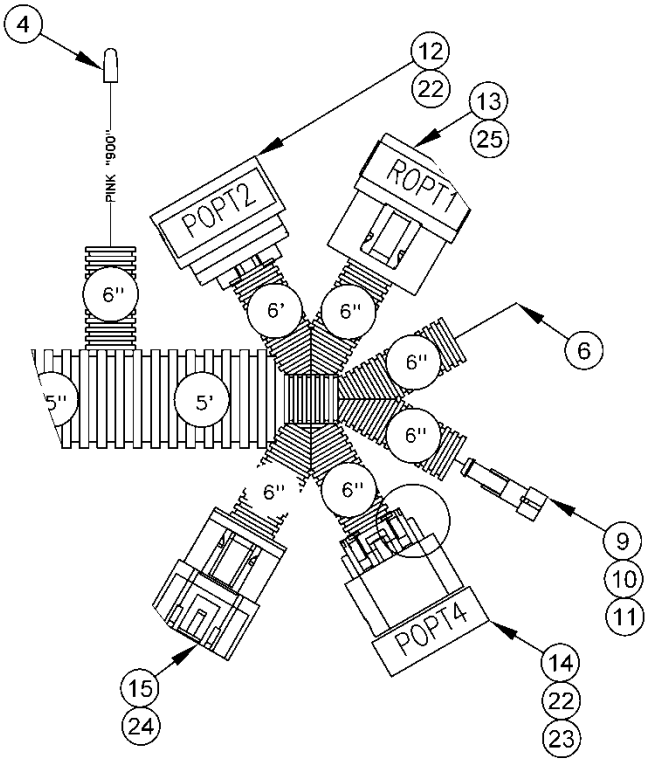
ACX CHASSIS INTERFACE HARNESS

263-1471-006





DETAIL A



DETAIL B

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ACX CHASSIS INTERFACE HARNESS

263-1471-006

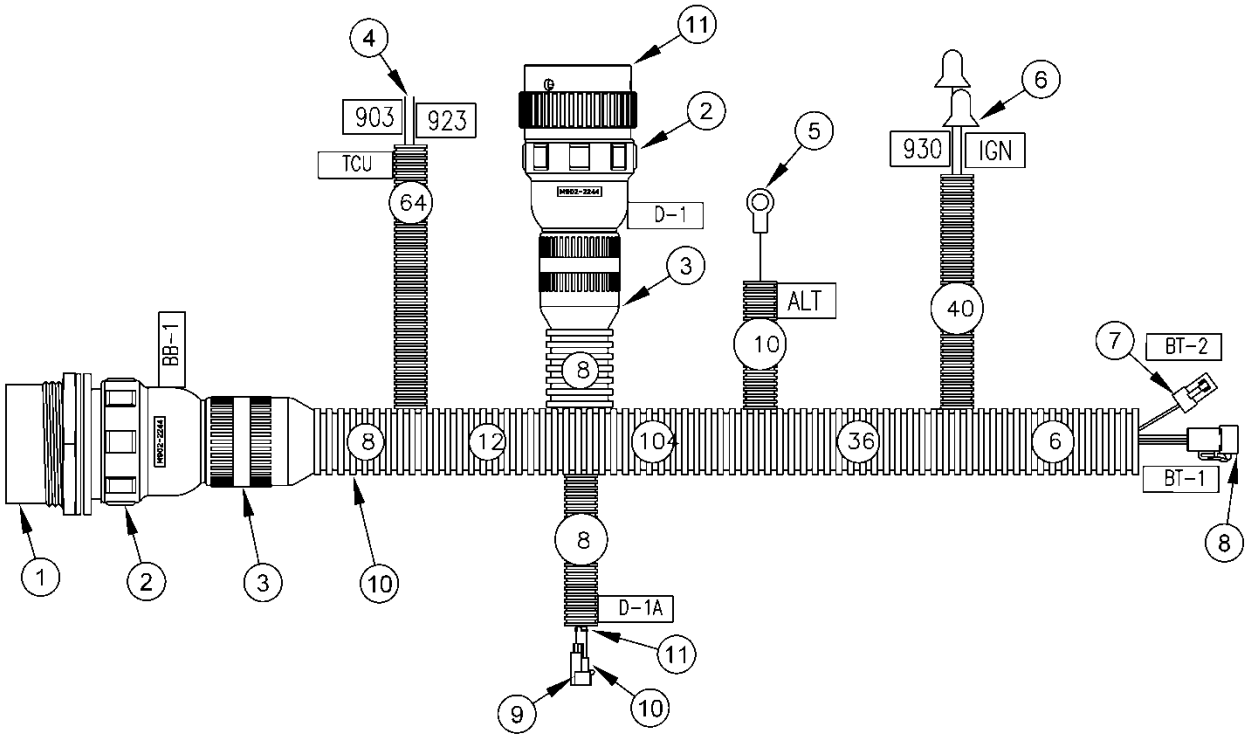
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1471-006	HARNESS, Chassis Interface, ACX (See SM 10)	-	REF
1	108-4815-068	PLUG, Socket, 24-Pin	-	1
2	108-4815-188	BACKSHELL, Long Compression	-	1
3	108-4815-189	NUT, Small Compression	-	1
4	108-8450-001	CAP, Heat Shrink, Adhesive Lined, Black	-	2
5	108-8551-007	RING, Terminal, 16 AWG	-	1
6	108-7114-016	PIN, Misc.	-	9
7	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	1
8	108-8411-004	PLUG, 4 Way	-	1
9	108-8493-007	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	1
10	108-8493-007	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	1
11	108-8493-010	SEALS, 2-1/2 mm – 3-1/3 mm	-	1
12	108-8471-009	CONNECTOR, Female, 10 Way, Unsealed	-	1
13	108-8471-008	CONNECTOR, Male, 10 Way, Unsealed	-	1
14	108-8471-001	CONNECTOR, Female, 8 Way, Unsealed	-	1
15	108-8471-007	CONNECTOR, Male, 8 Way, Unsealed	-	1
16	108-4815-125	SOCKET, #16, Gold, Plated	-	1
17	108-4815-303	SOCKET, #16, Nickel, Plated	-	8
18	108-4815-304	SOCKET, #20, Nickel, Plated	-	6
19	108-4815-301	SOCKET, #12, Nickel, Plated	-	4
20	108-6461-100	PLUG, Sealing	-	10
21	108-4815-300	SOCKET, #12, 10 AWG, Nickel, Plated	-	1
22	108-8471-004	TERMINAL, Female, 16-18 Ga.	-	7
23	108-8471-005	TERMINAL, Female, 12-14 Ga.	-	1
24	108-8471-011	TERMINAL, Male, 16-18 Ga.	-	5
25	108-8971-001	PIN, Terminator	-	2
26	108-8471-013	CONNECTOR, Male, 2 Way	-	1

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MRU CHASSIS INTERFACE HARNESS

263-1471-007



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MRU CHASSIS INTERFACE HARNESS

263-1471-007

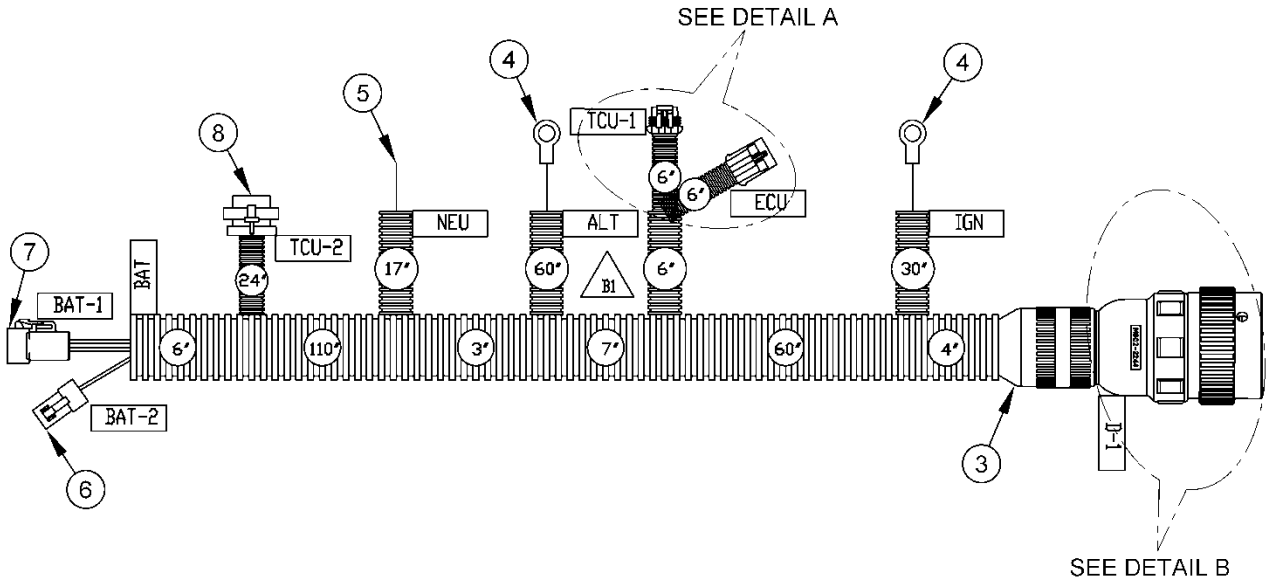
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1471-007	HARNESS, Chassis Interface, MRU (See SM 10)	-	REF
1	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
2	108-4815-188	BACKSHELL, Long Compression	-	2
3	108-4815-189	NUT, Small Compression	-	2
4	108-7114-016	PIN, Misc.	-	2
5	108-8551-007	RING, Terminal, 16 AWG	-	1
6	108-8450-001	CAP, Heat Shrink, Adhesive Lined, Black	-	2
7	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	1
8	108-8411-004	PLUG, 4 Way	-	1
9	108-8493-001	PLUG, Housing, 1 Way, Black	-	1
10	108-8493-007	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	1
11	108-8493-010	SEALS, 2-1/2 mm – 3-1/3 mm	-	1
-12	108-2648	DIODE, Silicon Rectifier	-	1
-13	108-4815-068	PLUG, Socket, 24-Pin	-	1

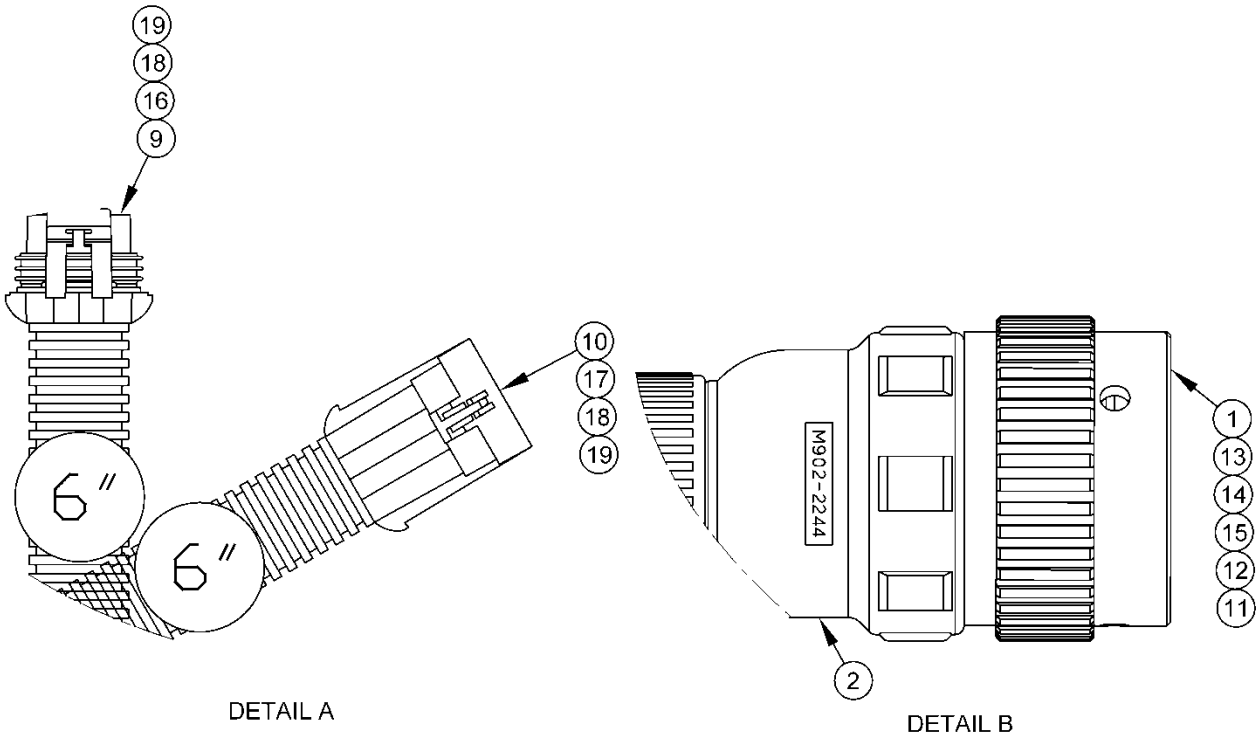
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INTERNATIONAL CHASSIS INTERFACE HARNESS

263-1471-009





DETAIL A

DETAIL B

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INTERNATIONAL CHASSIS INTERFACE HARNESS

263-1471-009

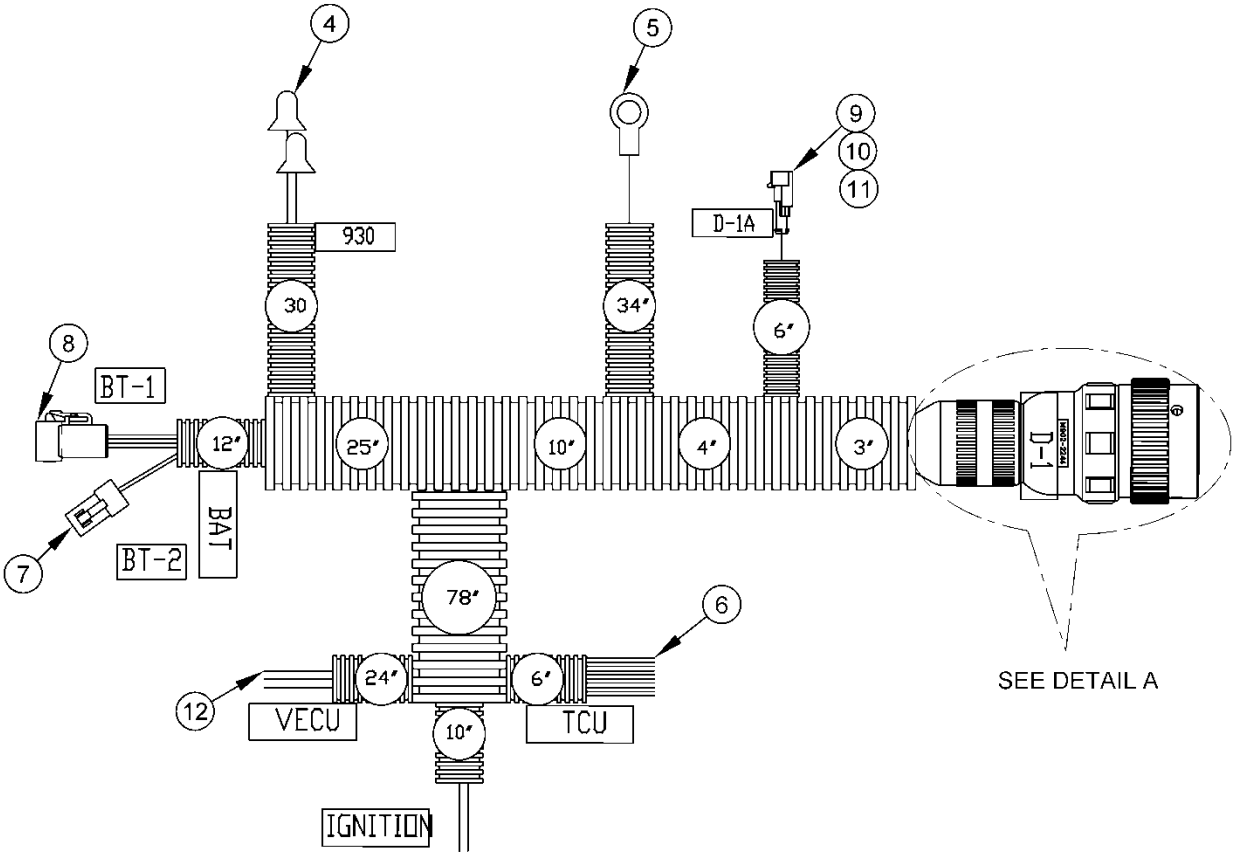
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1471-009	HARNESS, Chassis Interface, International (See SM 10)	-	REF
1	108-4815-068	PLUG, Socket, 24-Pin	-	1
2	108-4815-188	BACKSHELL, Long Compression	-	1
3	108-4815-189	NUT, Small Compression	-	1
4	108-8551-007	RING, Terminal, 16 AWG	-	2
5	108-8487-004	TERMINAL, Female, 16-18 Ga., Packard	-	9
6	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	1
7	108-8411-004	PLUG, 4 Way	-	1
8	108-8559-001	CONNECTOR, Ampseal	-	1
9	108-8509-008	PLUG, Housing, 8 Way, Black	-	1
10	108-8509-108	CAP, Housing, 8 Way, Black	-	1
11	108-6461-100	PLUG, Sealing	-	11
12	108-4815-300	SOCKET, #12, 10 AWG, Nickel, Plated	-	1
13	108-4815-301	SOCKET, #12, Nickel, Plated	-	6
14	108-4815-303	SOCKET, #16, Nickel, Plated	-	8
15	108-4815-304	SOCKET, #20, Nickel, Plated	-	6
16	108-8509-012	RECEPTACLE, Contacts, 18-16 AWG	-	5
17	108-8509-112	PIN, Contacts, 18-16 AWG, Tin Brass	-	3
18	108-8509-025	SEALS, Cavity Plug	-	8
19	108-8509-024	SEAL, Cable	-	8

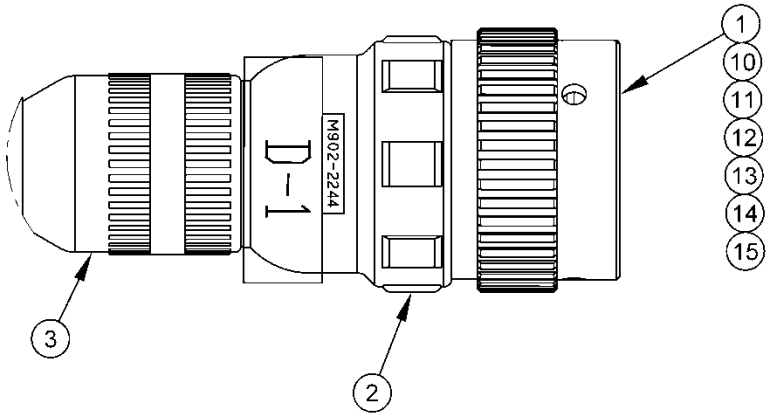
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GRANITE CHASSIS INTERFACE HARNESS

263-1471-003





DETAIL A

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GRANITE CHASSIS INTERFACE HARNESS

263-1471-003

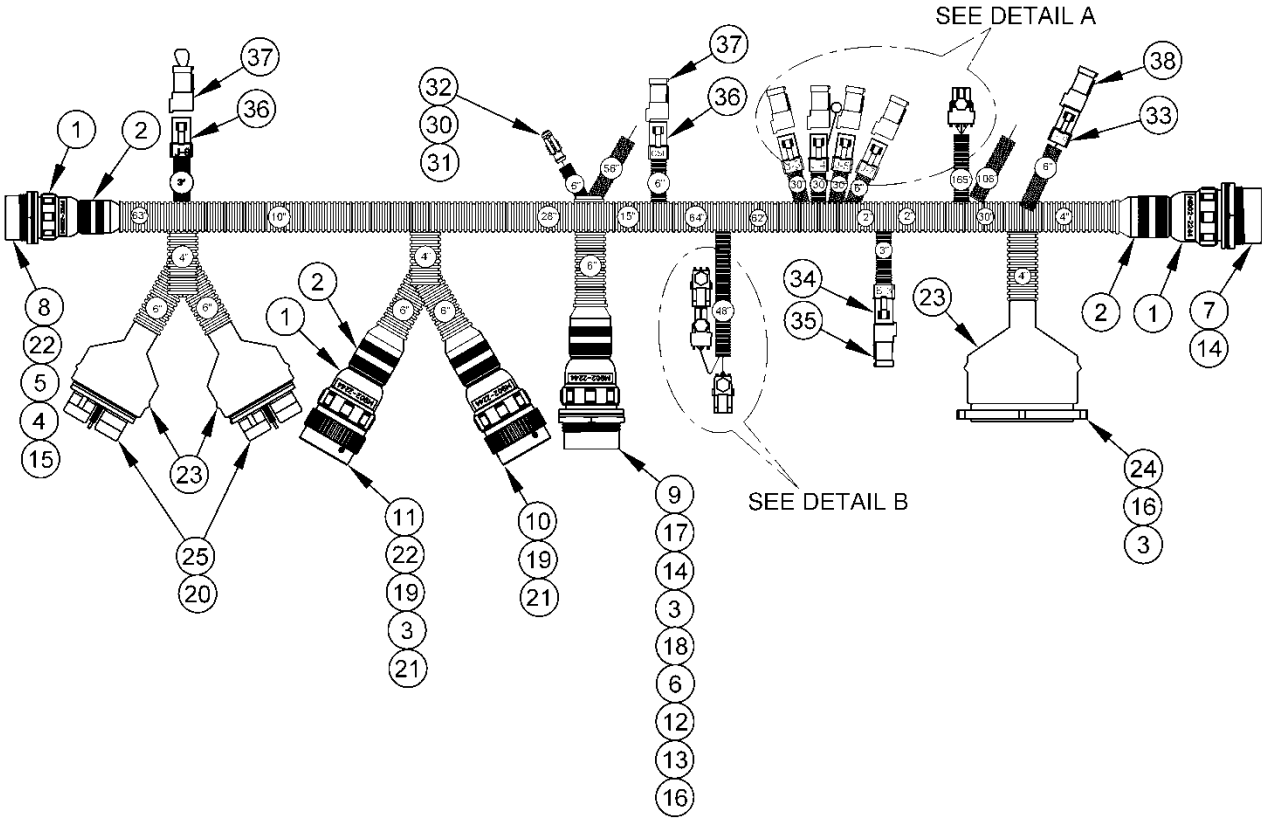
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1471-003	HARNESS, Chassis Interface, Granite (See SM 10)	-	REF
1	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
2	108-4815-188	BACKSHELL, Long Compression	-	1
3	108-4815-189	NUT, Small Compression	-	1
4	108-8450-001	CAP, Heat Shrink, Adhesive Lined, Black	-	2
5	108-8551-007	RING, Terminal, 16 AWG	-	1
6	108-7114-016	PIN, Misc.	-	9
7	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	1
8	108-8411-004	PLUG, 4 Way	-	1
9	108-6461-102	SOCKET, Gold Plated, Deutsch	-	3
10	108-4815-125	SOCKET, #16, Gold, Plated	-	1
11	108-4815-303	SOCKET, #16, Nickel, Plated	-	8
12	108-4815-304	SOCKET, #20, Nickel, Plated	-	6
13	108-4815-301	SOCKET, #12, Nickel, Plated	-	7
14	108-6461-100	PLUG, Sealing	-	10
15	108-4815-300	SOCKET, #12, 10 AWG, Nickel, Plated	-	1

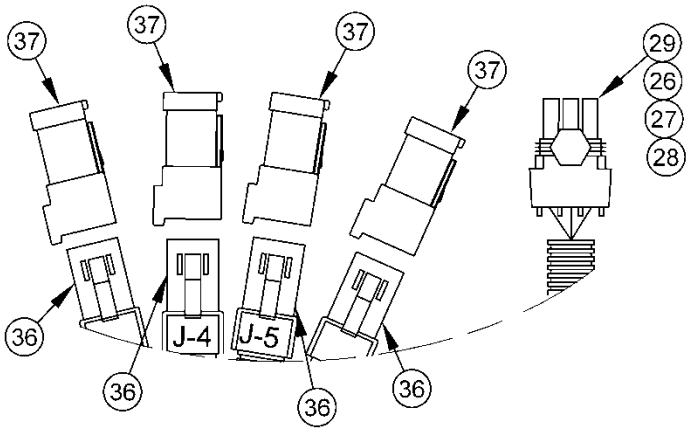
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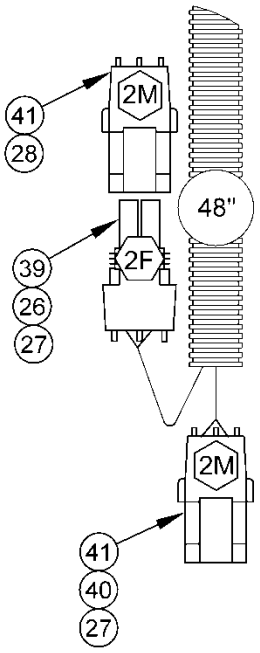
AUTOCAR WXLL CAB TO BODY HARNESS

263-1478-003





DETAIL A



DETAIL B

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AUTOCAR WXLL CAB TO BODY HARNESS

263-1478-003

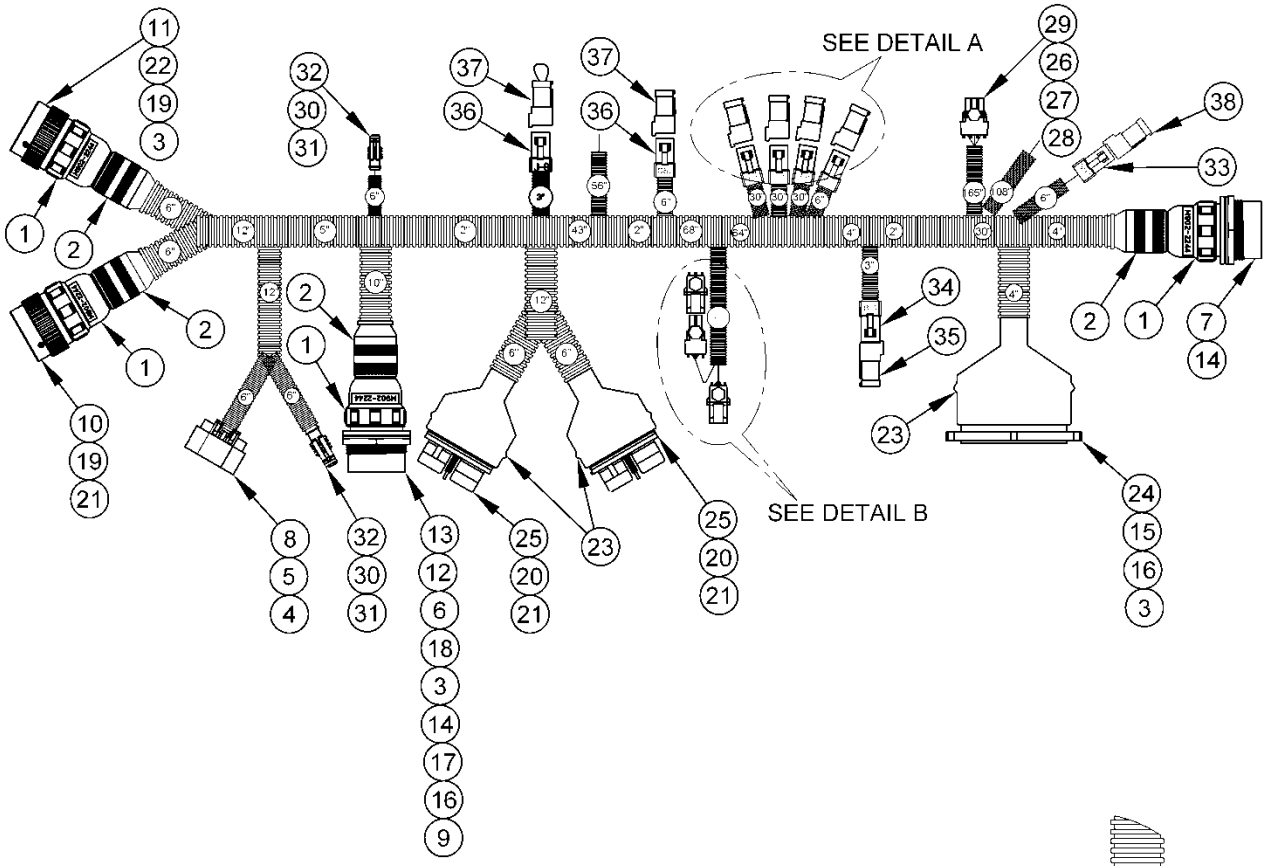
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1478-003	HARNESS, Cab to Body, Autocar WXLL (See 701-8943-001 in SM 10)	-	REF
1	108-4815-188	BACKSHELL, Long Compression	-	5
2	108-4815-189	NUT, Small Compression	-	5
3	108-6461-100	PLUG, Sealing	-	22
4	108-4815-103	PLUG, Sealing, #4	-	1
5	108-4815-106	PLUG, Sealing, #8	-	1
6	108-4815-114	PLUG, Sealing, #20	-	2
7	108-4815-024	RECEPTACLE, Pin, 24-Pin	-	1
8	108-4815-038	RECEPTACLE, Socket, 24-Pin	-	1
9	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
10	108-4815-031	PLUG, Socket, 24-Pin	-	1
11	108-4815-021	PLUG, Socket, 24-Pin	-	1
12	108-4815-404	PIN, #20, Nickel, Plated	-	3
13	108-4815-113	SOCKET, #20, Nickel, Plated	-	1
14	108-4815-403	PIN, #16, Nickel, Plated	-	28
15	105-4815-105	SOCKET, #8, Nickel, Plated	-	1
16	108-4815-124	PIN, #16, Gold, Plated	-	35
17	108-4815-401	PIN, #12, Nickel, Plated	-	2
18	108-4815-400	PIN, #12, Nickel, Plated	-	1
19	108-4815-304	SOCKET, #20, Nickel, Plated	-	19
20	108-4815-111	SOCKET, #16, Nickel, Plated	-	48
21	108-4815-125	SOCKET, #16, Gold, Plated	-	31
22	108-4815-301	SOCKET, #12, Nickel, Plated	-	8
23	108-6025-151	BOOT, 40-Pin	-	3
24	108-6025-007	RECEPTACLE, Flange, 40-Pin	-	1
25	108-6025-002	PLUG, Socket, 40	-	2
26	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	6
27	108-4827-132	SEAL, Cable, 16-14 AWG	-	6
28	108-4827-134	PLUG, Cavity	-	3
29	108-4827-006	CONNECTOR, Female, 3 Way, Packard	-	1
30	108-8493-006	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	1
31	108-8493-009	SEAL, Cable	-	1
32	108-8493-001	PLUG, Housing, 1 Way, Black	-	1
33	108-8411-002	PLUG, 2 Way	-	1
34	108-6461-003	PLUG, Str., 4 Way	-	1
35	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	1
36	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	6
37	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	6
38	108-8411-001	RECEPTACLE, 2 Way, Deutsch DTP Series	-	1
39	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	1
40	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	2
41	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	2

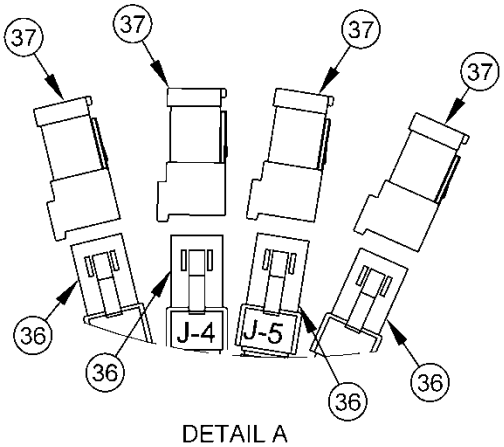
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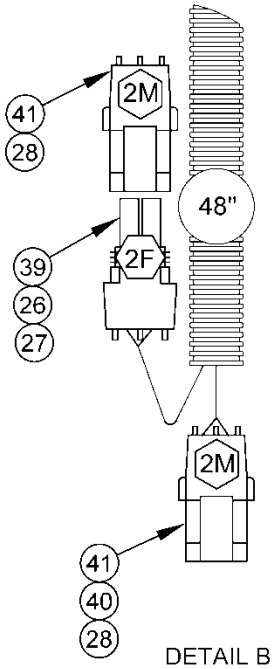
AUTOCAR ACX CAB TO BODY HARNESS

263-1478-004





DETAIL A



DETAIL B

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AUTOCAR ACX CAB TO BODY HARNESS

263-1478-004

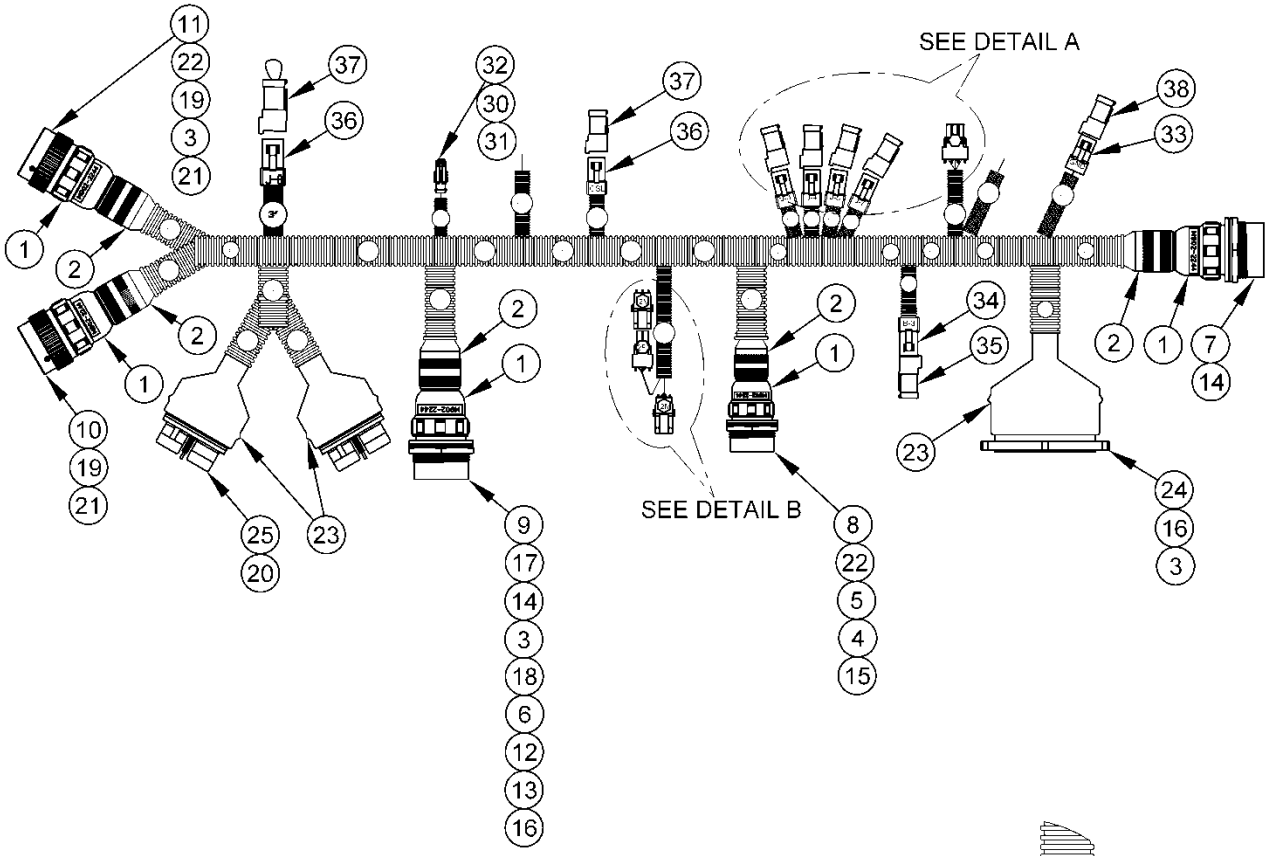
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1478-004	HARNESS, Cab to Body, Autocar ACX (See 701-8943-007 in SM 10)..	-	REF
1	108-4815-188	BACKSHELL, Long Compression	-	5
2	108-4815-189	NUT, Small Compression	-	5
3	108-6461-100	PLUG, Sealing	-	21
4	108-8471-003	CPA, Unsealed	-	1
5	108-8471-005	TERMINAL, Female, 12-14 GA	-	6
6	108-4815-114	PLUG, Sealing, #20	-	2
7	108-4815-024	RECEPTACLE, Pin, 24-Pin	-	1
8	108-8471-010	CONNECTOR, Female, 6 Way	-	1
9	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
10	108-4815-031	PLUG, Socket, 24-Pin	-	1
11	108-4815-021	PLUG, Socket, 24-Pin	-	1
12	108-4815-404	PIN, #20, Nickel, Plated	-	3
13	108-4815-113	SOCKET, #20, Nickel, Plated	-	1
14	108-4815-403	PIN, #16, Nickel, Plated	-	28
15	108-4815-110	PIN, #16, Nickel, Plated	-	24
16	108-4815-124	PIN, #16, Gold, Plated	-	12
17	108-4815-401	PIN, #12, Nickel, Plated	-	2
18	108-4815-400	PIN, #12, Nickel, Plated	-	1
19	108-4815-304	SOCKET, #20, Nickel, Plated	-	38
20	108-4815-111	SOCKET, #16, Nickel, Plated	-	24
21	108-4815-125	SOCKET, #16, Gold, Plated	-	24
22	108-4815-301	SOCKET, #12, Nickel, Plated	-	2
23	108-6025-151	BOOT, 40-Pin	-	3
24	108-6025-007	RECEPTACLE, Flange, 40-Pin	-	1
25	108-6025-002	PLUG, 24-Socket	-	2
26	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	6
27	108-4827-132	SEAL, Cable, 16-14 AWG	-	6
28	108-4827-134	PLUG, Cavity	-	3
29	108-4827-006	CONNECTOR, Female, 3 Way, Packard	-	1
30	108-8493-006	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	2
31	108-8493-009	SEAL, Cable	-	2
32	108-8493-001	PLUG, Housing, 1 Way, Black	-	2
33	108-8411-002	PLUG, 2 Way	-	1
34	108-6461-003	PLUG, Str., 4 Way	-	2
35	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	2
36	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	6
37	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	6
38	108-8411-001	RECEPTACLE, 2 Way, Deutsch DTP Series	-	1
39	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	1
40	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	2
41	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	1

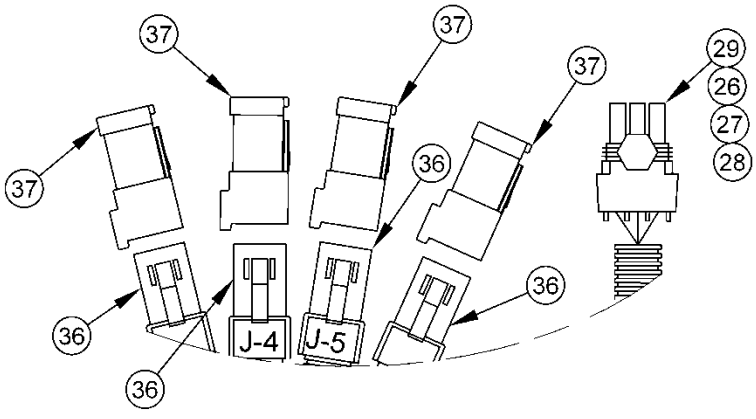
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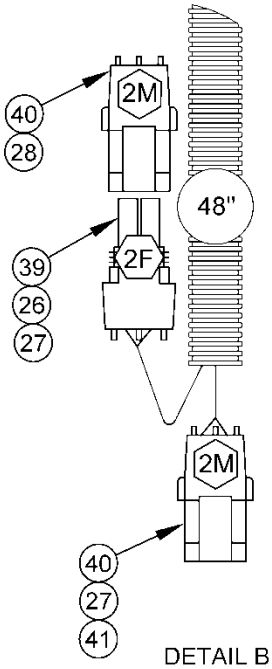
CCC CHASSIS INTERFACE HARNESS

263-1478-001





DETAIL A



DETAIL B

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CCC CHASSIS INTERFACE HARNESS

263-1478-001

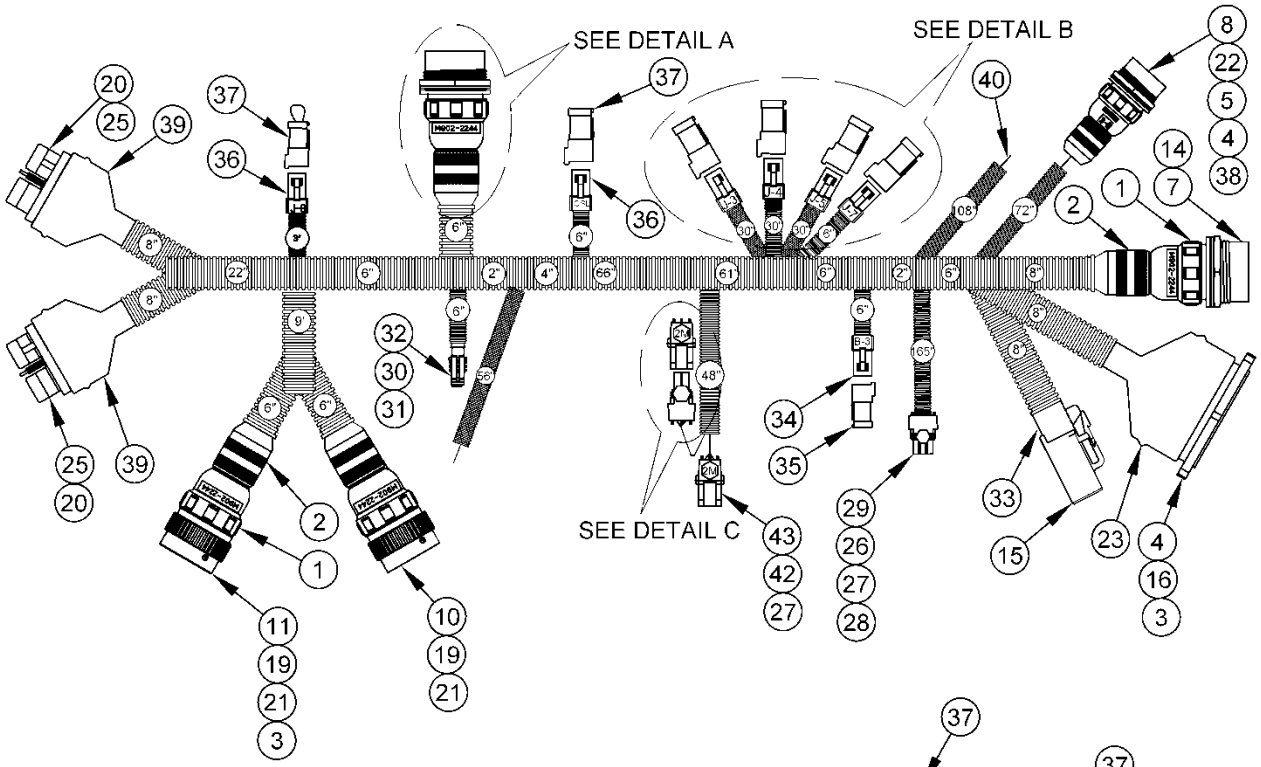
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1478-001	HARNESS, Chassis Interface, CCC (See 701-8943-001 in SM 10)	-	REF
1	108-4815-188	BACKSHELL, Long Compression	-	5
2	108-4815-189	NUT, Small Compression	-	5
3	108-6461-100	PLUG, Sealing	-	22
4	108-4815-103	PLUG, Sealing, #4	-	1
5	108-4815-106	PLUG, Sealing, #8	-	1
6	108-4815-114	PLUG, Sealing, #20	-	2
7	108-4815-024	RECEPTACLE, Pin, 24-Pin	-	1
8	108-4815-038	RECEPTACLE, Socket, 24-Pin	-	1
9	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
10	108-4815-031	PLUG, Socket, 24-Pin	-	1
11	108-4815-021	PLUG, Socket, 24-Pin	-	1
12	108-4815-404	PIN, #20, Nickel, Plated	-	3
13	108-4815-113	SOCKET, #20, Nickel, Plated	-	1
14	108-4815-403	PIN, #16, Nickel, Plated	-	28
15	105-4815-105	SOCKET, #8, Nickel, Plated	-	1
16	108-4815-124	PIN, #16, Gold, Plated	-	35
17	108-4815-401	PIN, #12, Nickel, Plated	-	2
18	108-4815-400	PIN, #12, Nickel, Plated	-	1
19	108-4815-304	SOCKET, #20, Nickel, Plated	-	19
20	108-4815-111	SOCKET, #16, Nickel, Plated	-	48
21	108-4815-125	SOCKET, #16, Gold, Plated	-	31
22	108-4815-301	SOCKET, #12, Nickel, Plated	-	8
23	108-6025-151	BOOT, 40-Pin	-	3
24	108-6025-007	RECEPTACLE, Flange, 40-Pin	-	1
25	108-6025-002	PLUG, Socket, 40	-	2
26	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	6
27	108-4827-132	SEAL, Cable, 16-14 AWG	-	6
28	108-4827-134	PLUG, Cavity	-	3
29	108-4827-006	CONNECTOR, Female, 3 Way, Packard	-	1
30	108-8493-006	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	1
31	108-8493-009	SEAL, Cable	-	1
32	108-8493-001	PLUG, Housing, 1 Way, Black	-	1
33	108-8411-002	PLUG, 2 Way	-	1
34	108-6461-003	PLUG, Str., 4 Way, Deutsch DT Series	-	1
35	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	1
36	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	6
37	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	6
38	108-8411-001	RECEPTACLE, 2 Way, Deutsch DTP Series	-	1
39	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	1
40	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	1
41	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	1

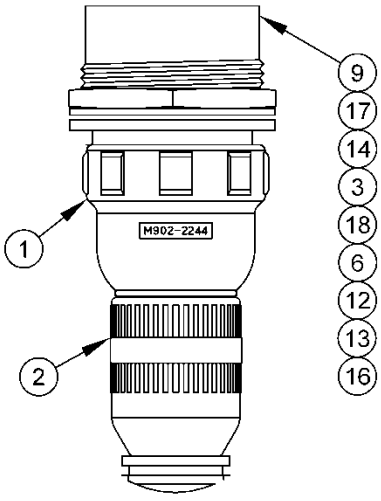
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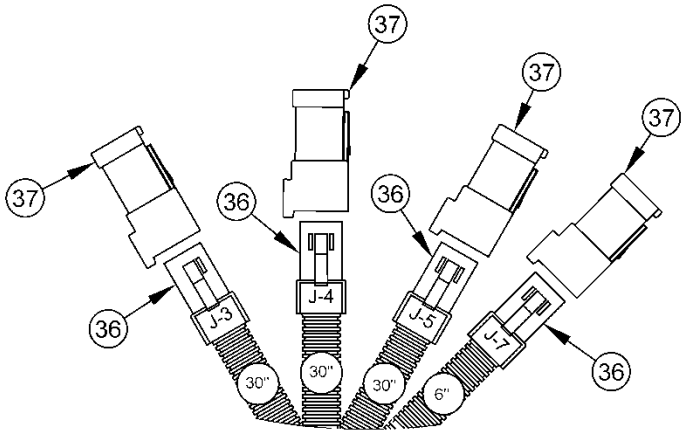
MACK MRU CAB TO BODY HARNESS

263-1478-005

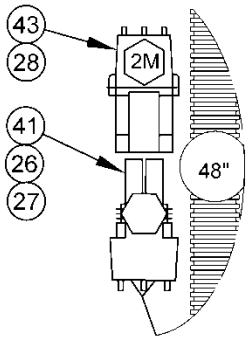




DETAIL A



DETAIL B



DETAIL C

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MACK MRU CAB TO BODY HARNESS

263-1478-005

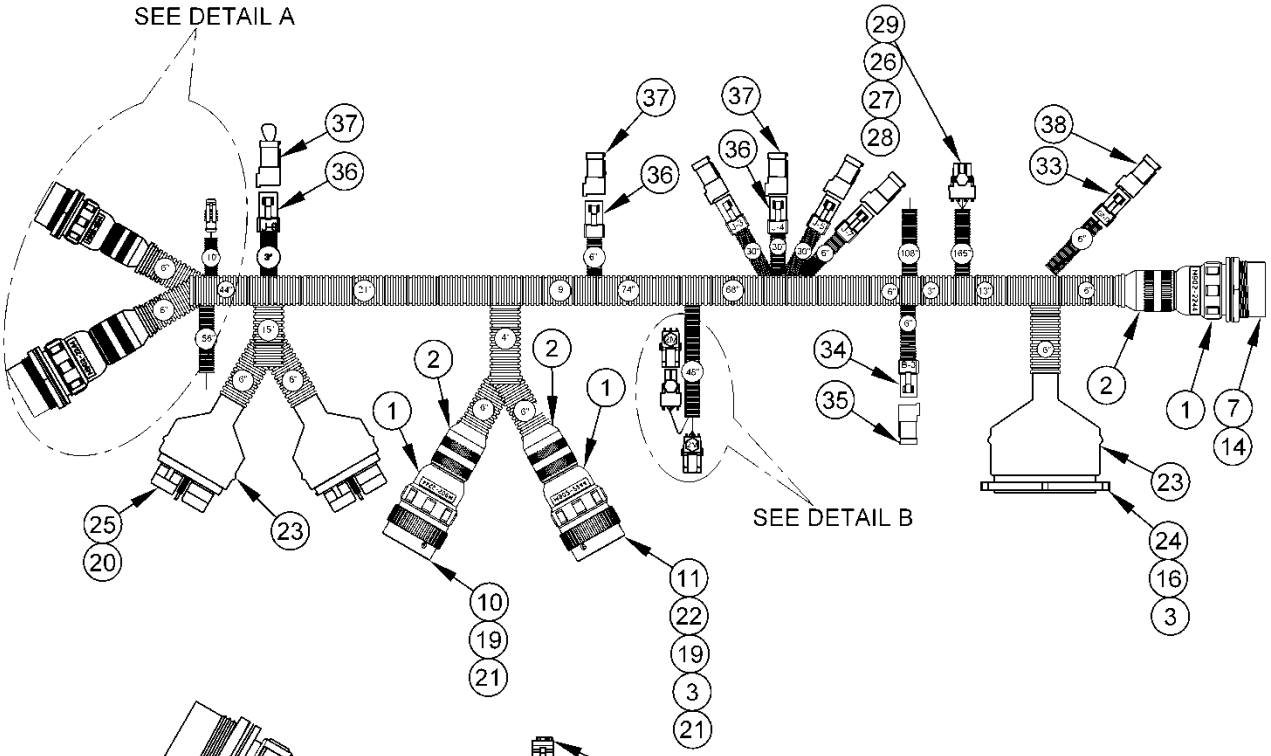
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1478-005	HARNESS, Cab to Body, Mack MRU (See 701-8943-001 in SM 10)	-	REF
1	108-4815-188	BACKSHELL, Long Compression	-	5
2	108-4815-189	NUT, Small Compression	-	5
3	108-6461-100	PLUG, Sealing	-	22
4	108-4815-103	PLUG, Sealing, #4	-	1
5	108-4815-106	PLUG, Sealing, #8	-	1
6	108-4815-114	PLUG, Sealing, #20	-	2
7	108-4815-024	RECEPTACLE, Pin, 24-Pin	-	1
8	108-4815-038	RECEPTACLE, Socket, 24-Pin	-	1
9	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
10	108-4815-031	PLUG, Socket, 24-Pin	-	1
11	108-4815-021	PLUG, Socket, 24-Pin	-	1
12	108-4815-404	PIN, #20, Nickel, Plated	-	3
13	108-4815-113	SOCKET, #20, Nickel, Plated	-	1
14	108-4815-403	PIN, #16, Nickel, Plated	-	28
15	108-8411-001	RECEPTACLE, 2 Way, Deutsch DTP Series	-	1
16	108-4815-124	PIN, #16, Gold, Plated	-	34
17	108-4815-401	PIN, #12, Nickel, Plated	-	2
18	108-4815-400	PIN, #12, Nickel, Plated	-	1
19	108-4815-304	SOCKET, #20, Nickel, Plated	-	18
20	108-4815-111	SOCKET, #16, Nickel, Plated	-	48
21	108-4815-125	SOCKET, #16, Gold, Plated	-	31
22	108-4815-301	SOCKET, #12, Nickel, Plated	-	6
23	108-6025-151	BOOT, 40-Pin	-	1
-24	108-6025-007	RECEPTACLE, Flange, 40-Pin	-	1
25	108-6025-002	PLUG, 24-Socket	-	2
26	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	4
27	108-4827-132	SEAL, Cable, 16-14 AWG	-	4
28	108-4827-134	PLUG, Cavity	-	3
29	108-4827-006	CONNECTOR, Female, 3 Way, Packard	-	1
30	108-8493-006	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	1
31	108-8493-009	SEAL, Cable	-	1
32	108-8493-001	PLUG, Housing, 1 Way, Black	-	1
33	108-8411-002	PLUG, 2 Way	-	1
34	108-6461-003	PLUG, Str., 4 Way	-	1
35	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	1
36	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	6
37	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	6
38	108-4815-105	SOCKET, #8, Nickel, Plated	-	1
39	108-6025-150	BOOT, 24-Pin	-	2
40	005-5449	AIR LINE, 1/4” Dia.	-	31’
41	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	1
42	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	2
43	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	1

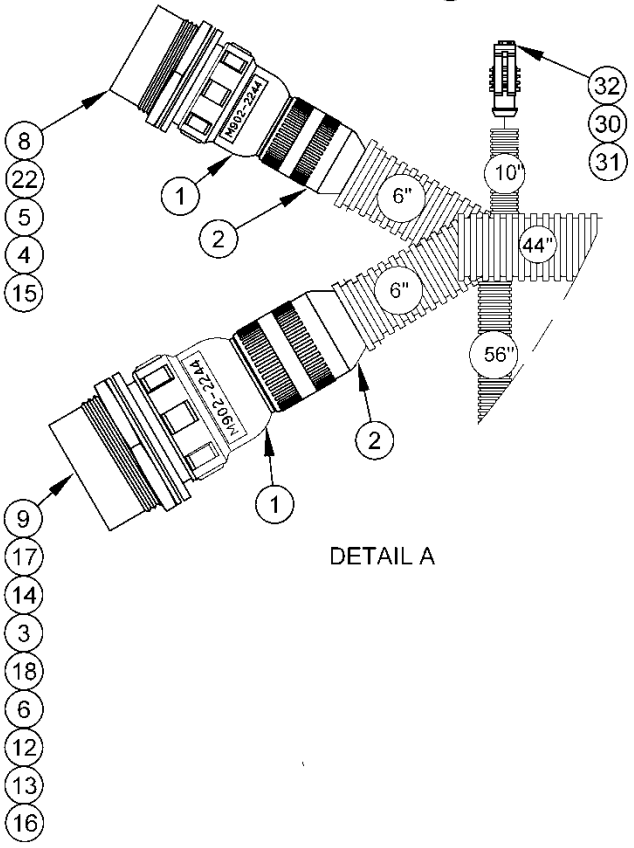
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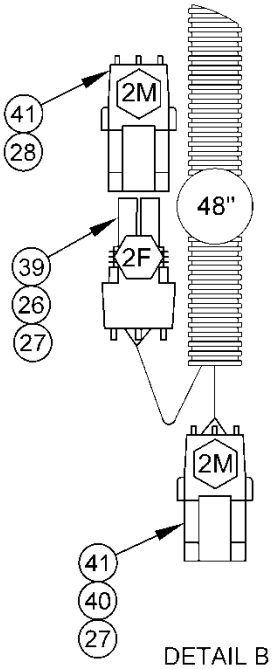
MACK LEU CAB TO BODY HARNESS

263-1478-006





DETAIL A



DETAIL B

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MACK LEU CAB TO BODY HARNESS

263-1478-006

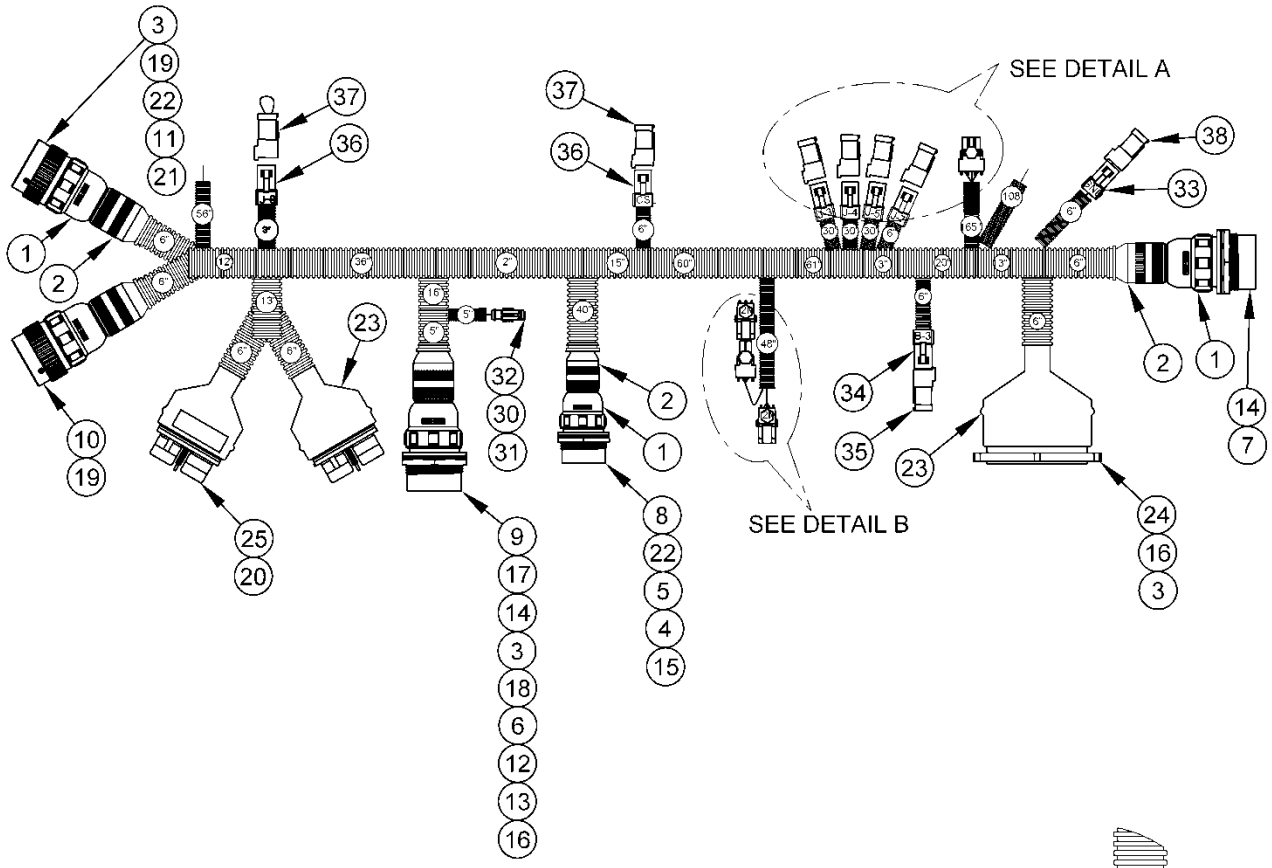
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1478-006	HARNESS, Cab to Body, Mack LEU (See 701-8943-001 in SM 10)	-	REF
1	108-4815-188	BACKSHELL, Long Compression	-	5
2	108-4815-189	NUT, Small Compression	-	5
3	108-6461-100	PLUG, Sealing	-	22
4	108-4815-103	PLUG, Sealing, #4	-	1
5	108-4815-106	PLUG, Sealing, #8	-	1
6	108-4815-114	PLUG, Sealing, #20	-	2
7	108-4815-024	RECEPTACLE, Pin, 24-Pin	-	1
8	108-4815-038	RECEPTACLE, Socket, 24-Pin	-	1
9	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
10	108-4815-031	PLUG, Socket, 24-Pin	-	1
11	108-4815-021	PLUG, Socket, 24-Pin	-	1
12	108-4815-404	PIN, #20, Nickel, Plated	-	3
13	108-4815-113	SOCKET, #20, Nickel, Plated	-	1
14	108-4815-403	PIN, #16, Nickel, Plated	-	28
15	105-4815-105	SOCKET, #8, Nickel, Plated	-	1
16	108-4815-124	PIN, #16, Gold, Plated	-	35
17	108-4815-401	PIN, #12, Nickel, Plated	-	2
18	108-4815-400	PIN, #12, Nickel, Plated	-	1
19	108-4815-304	SOCKET, #20, Nickel, Plated	-	19
20	108-4815-111	SOCKET, #16, Nickel, Plated	-	48
21	108-4815-125	SOCKET, #16, Gold, Plated	-	31
22	108-4815-301	SOCKET, #12, Nickel, Plated	-	8
23	108-6025-151	BOOT, 40-Pin	-	3
24	108-6025-007	RECEPTACLE, Flange, 40-Pin	-	1
25	108-6025-002	PLUG, Socket, 40	-	2
26	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	4
27	108-4827-132	SEAL, Cable, 16-14 AWG	-	6
28	108-4827-134	PLUG, Cavity	-	2
29	108-4827-006	CONNECTOR, Female, 3 Way, Packard	-	1
30	108-8493-006	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	1
31	108-8493-009	SEAL, Cable	-	1
32	108-8493-001	PLUG, Housing, 1 Way, Black	-	1
33	108-8411-002	PLUG, 2 Way	-	1
34	108-6461-003	PLUG, Str., 4 Way	-	3
35	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	3
36	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	6
37	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	6
38	108-8411-001	RECEPTACLE, 2 Way, Deutsch DTP Series	-	1
39	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	1
40	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	2
41	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	1

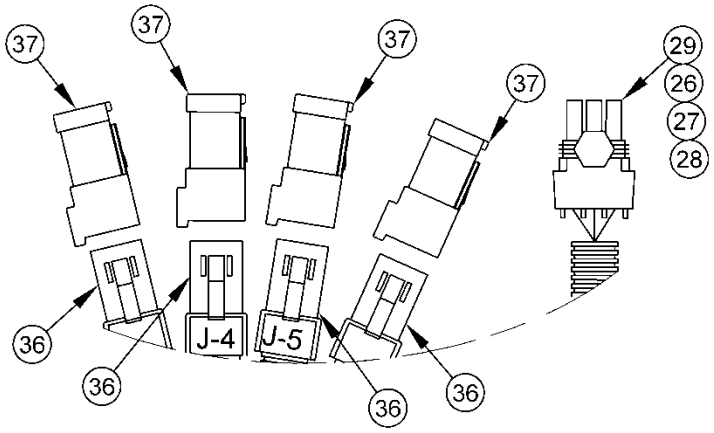
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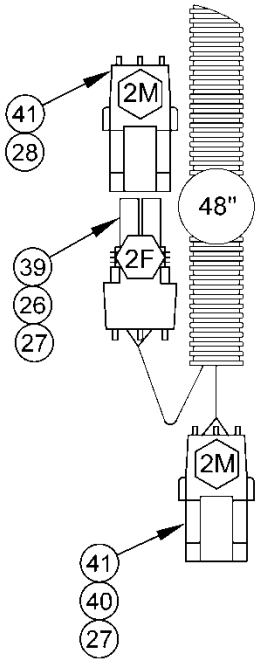
CONDOR CAB TO BODY HARNESS

263-1478-007





DETAIL A



DETAIL B

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CONDOR CAB TO BODY HARNESS

263-1478-007

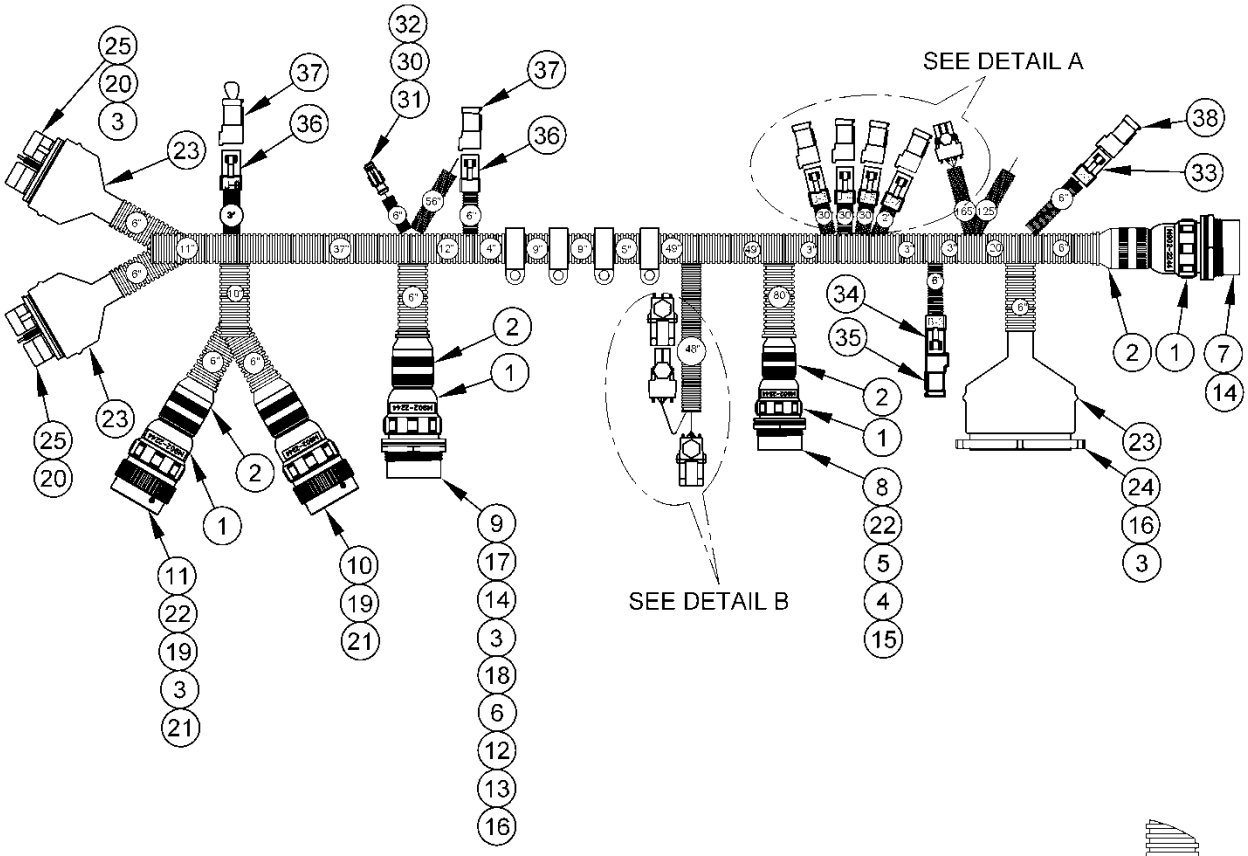
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1478-007	HARNESS, Cab to Body, Condor (See 701-8943-001 in SM 10)	-	REF
1	108-4815-188	BACKSHELL, Long Compression	-	5
2	108-4815-189	NUT, Small Compression	-	5
3	108-6461-100	PLUG, Sealing	-	22
4	108-4815-103	PLUG, Sealing, #4	-	1
5	108-4815-106	PLUG, Sealing, #8	-	1
6	108-4815-114	PLUG, Sealing, #20	-	2
7	108-4815-024	RECEPTACLE, Pin, 24-Pin	-	1
8	108-4815-038	RECEPTACLE, Socket, 24-Pin	-	1
9	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
10	108-4815-031	PLUG, Socket, 24-Pin	-	1
11	108-4815-021	PLUG, Socket, 24-Pin	-	1
12	108-4815-404	PIN, #20, Nickel, Plated	-	3
13	108-4815-113	SOCKET, #20, Nickel, Plated	-	1
14	108-4815-403	PIN, #16, Nickel, Plated	-	28
15	105-4815-105	SOCKET, #8, Nickel, Plated	-	1
16	108-4815-124	PIN, #16, Gold, Plated	-	35
17	108-4815-401	PIN, #12, Nickel, Plated	-	2
18	108-4815-400	PIN, #12, Nickel, Plated	-	1
19	108-4815-304	SOCKET, #20, Nickel, Plated	-	19
20	108-4815-111	SOCKET, #16, Nickel, Plated	-	48
21	108-4815-125	SOCKET, #16, Gold, Plated	-	31
22	108-4815-301	SOCKET, #12, Nickel, Plated	-	8
23	108-6025-151	BOOT, 40-Pin	-	3
24	108-6025-007	RECEPTACLE, Flange, 40-Pin	-	1
25	108-6025-002	PLUG, Socket, 40	-	2
26	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	4
27	108-4827-132	SEAL, Cable, 16-14 AWG	-	6
28	108-4827-134	PLUG, Cavity	-	3
29	108-4827-006	CONNECTOR, Female, 3 Way, Packard	-	1
30	108-8493-006	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	1
31	108-8493-009	SEAL, Cable	-	1
32	108-8493-001	PLUG, Housing, 1 Way, Black	-	1
33	108-8411-002	PLUG, 2 Way	-	1
34	108-6461-003	PLUG, Str., 4 Way	-	1
35	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	1
36	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	6
37	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	6
38	108-8411-001	RECEPTACLE, 2 Way, Deutsch DTP Series	-	1
39	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	1
40	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	2
41	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	1

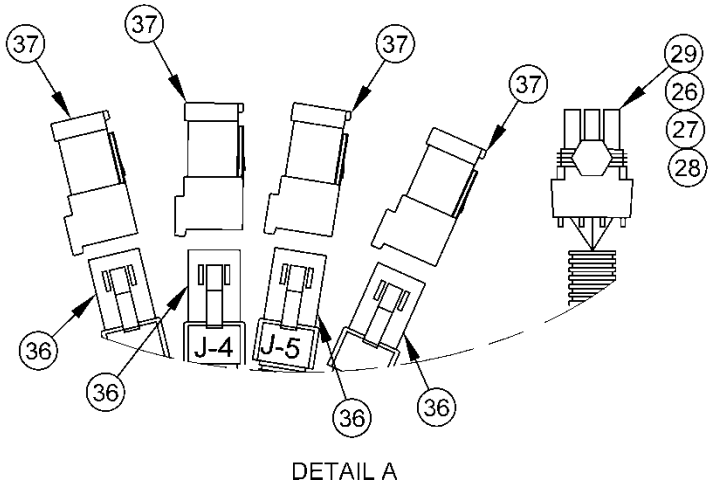
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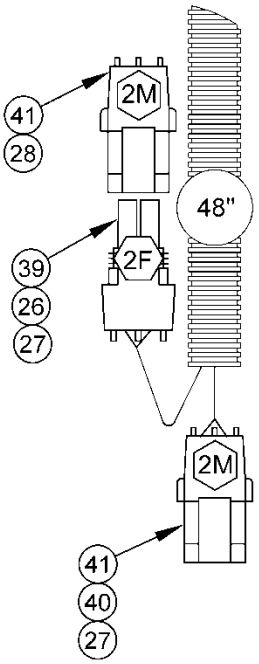
PETERBILT COE CAB TO BODY HARNESS

263-1478-008





DETAIL A



DETAIL B

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PETERBILT COE CAB TO BODY HARNESS

263-1478-008

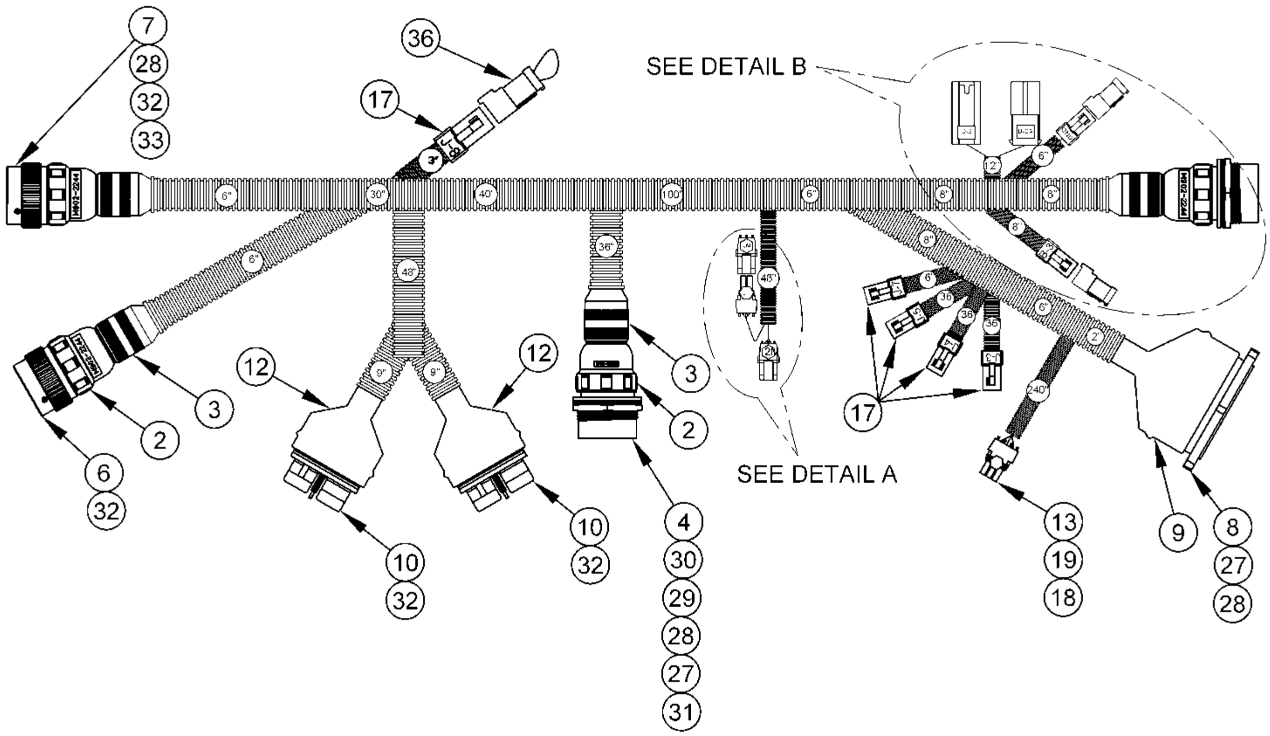
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1478-008	HARNESS, Cab to Body, Peterbilt COE (See 701-8943-001 in SM 10)	-	REF
1	108-4815-188	BACKSHELL, Long Compression	-	5
2	108-4815-189	NUT, Small Compression	-	5
3	108-6461-100	PLUG, Sealing	-	22
4	108-4815-103	PLUG, Sealing, #4	-	1
5	108-4815-106	PLUG, Sealing, #8	-	1
6	108-4815-114	PLUG, Sealing, #20	-	2
7	108-4815-024	RECEPTACLE, Pin, 24-Pin	-	1
8	108-4815-038	RECEPTACLE, Socket, 24-Pin	-	1
9	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
10	108-4815-031	PLUG, Socket, 24-Pin	-	1
11	108-4815-021	PLUG, Socket, 24-Pin	-	1
12	108-4815-404	PIN, #20, Nickel, Plated	-	3
13	108-4815-113	SOCKET, #20, Nickel, Plated	-	1
14	108-4815-403	PIN, #16, Nickel, Plated	-	28
15	105-4815-105	SOCKET, #8, Nickel, Plated	-	1
16	108-4815-124	PIN, #16, Gold, Plated	-	35
17	108-4815-401	PIN, #12, Nickel, Plated	-	2
18	108-4815-400	PIN, #12, Nickel, Plated	-	1
19	108-4815-304	SOCKET, #20, Nickel, Plated	-	19
20	108-4815-111	SOCKET, #16, Nickel, Plated	-	48
21	108-4815-125	SOCKET, #16, Gold, Plated	-	31
22	108-4815-301	SOCKET, #12, Nickel, Plated	-	8
23	108-6025-151	BOOT, 40-Pin	-	3
24	108-6025-007	RECEPTACLE, Flange, 40-Pin	-	1
25	108-6025-002	PLUG, Socket, 40	-	2
26	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	4
27	108-4827-132	SEAL, Cable, 16-14 AWG	-	6
28	108-4827-134	PLUG, Cavity	-	3
29	108-4827-006	CONNECTOR, Female, 3 Way, Packard	-	1
30	108-8493-006	RECEPTACLE, Contacts, 18-1/2 mm - 15-1/2 mm AWG	-	1
31	108-8493-009	SEAL, Cable	-	1
32	108-8493-001	PLUG, Housing, 1 Way, Black	-	1
33	108-8411-002	PLUG, 2 Way	-	1
34	108-6461-003	PLUG, Str., 4 Way	-	1
35	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	1
36	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	6
37	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	6
38	108-8411-001	RECEPTACLE, 2 Way, Deutsch DTP Series	-	1
39	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	1
40	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	2
41	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	2

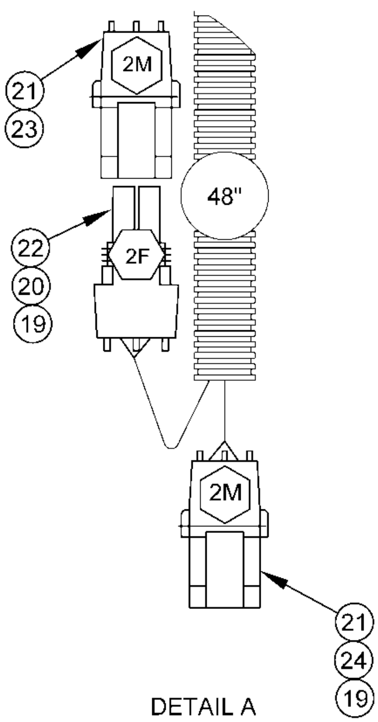
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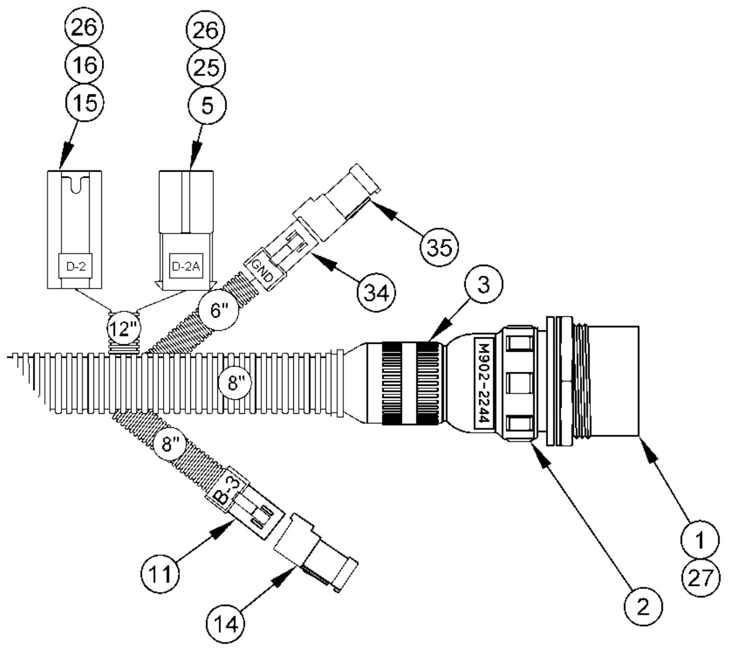
INTERNATIONAL CAB TO BODY HARNESS

263-1478-015





DETAIL A



DETAIL B

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INTERNATIONAL CAB TO BODY HARNESS

263-1478-015

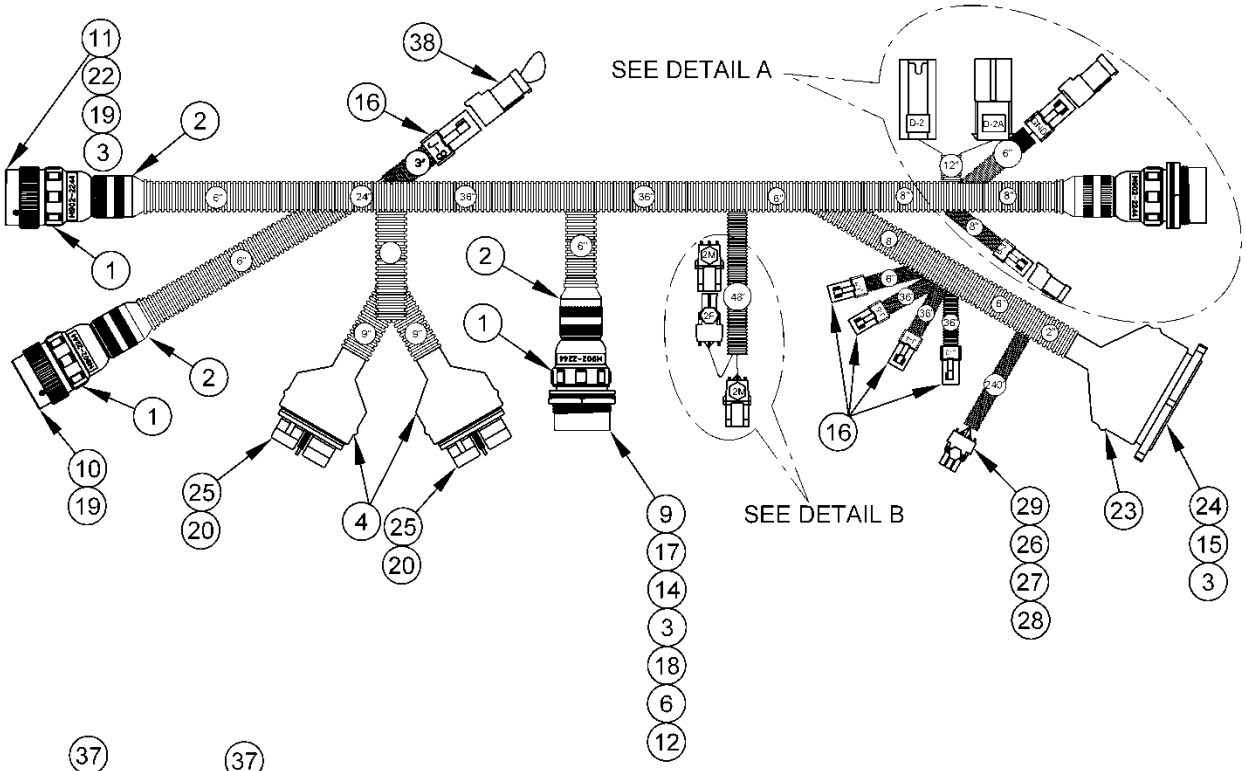
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1478-015	HARNESS, Cab to Body, International (See 701-8943-004 in SM 10)	-	REF
1	108-4815-024	RECEPTACLE, Pin, 24-Pin	-	1
2	108-4815-188	BACKSHELL, Long Compression	-	4
3	108-4815-189	NUT, Small Compression	-	4
4	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
5	108-8470-001	CONNECTOR, Plug, Male, 3 Way	-	1
6	108-4815-031	PLUG, Socket, 24-Pin	-	1
7	108-4815-021	PLUG, Socket, 24-Pin	-	1
8	108-6025-007	RECEPTACLE, Flange, 40-Pin	-	1
9	108-6025-151	BOOT, 40-Pin	-	1
10	108-6025-002	PLUG, 24-Socket	-	2
11	108-6461-003	PLUG, Str., 4 Way	-	2
12	108-6025-150	BOOT, 24-Pin	-	2
13	108-4827-006	CONNECTOR, Female, 3 Way, Packard	-	1
14	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	1
15	108-8470-003	CONNECTOR, Plug, Male, 7 Way	-	1
16	108-8470-004	SEAL, 7 Way	-	2
17	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	5
18	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	3
19	108-4827-132	SEAL, Cable, 16-14 AWG	-	3
20	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	4
21	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	2
22	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	2
23	108-4827-134	PLUG, Cavity	-	2
24	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	2
25	108-8470-002	SEAL, 3 Way	-	1
26	108-8470-005	PIN, Terminator	-	6
27	108-4815-403	PIN, #16, Nickel, Plated	-	64
28	108-6461-100	PLUG, Sealing	-	21
29	108-4815-401	PIN, #12, Nickel, Plated	-	3
30	108-4815-404	PIN, #20, Nickel, Plated	-	4
31	108-4815-114	PLUG, Sealing, #20	-	2
32	108-4815-303	SOCKET, #16, Nickel, Plated	-	72
33	108-4815-301	SOCKET, #12, Nickel, Plated	-	2
34	108-8411-002	PLUG, 2 Way	-	1
35	108-8411-001	RECEPTACLE, 2 Way, Deutsch DTP Series	-	1
36	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	1

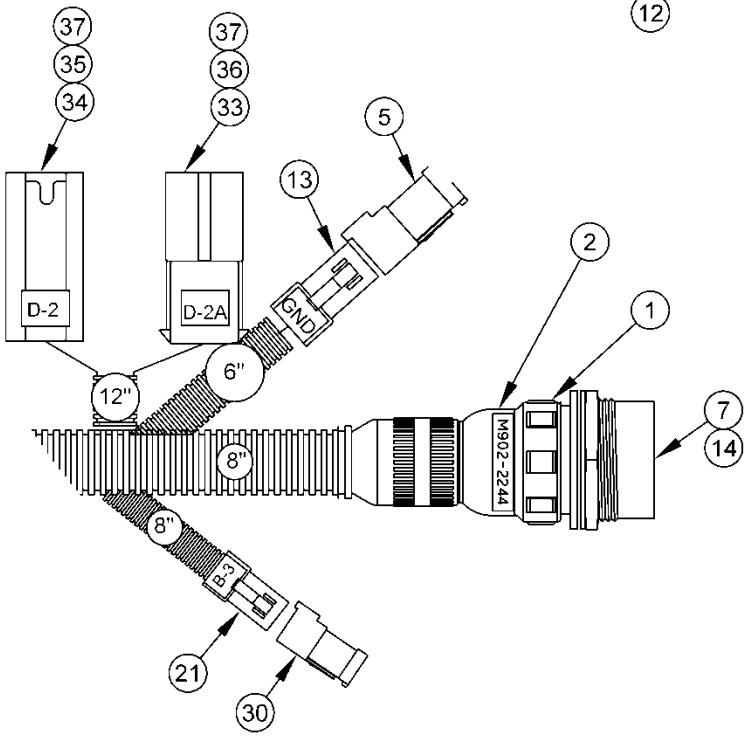
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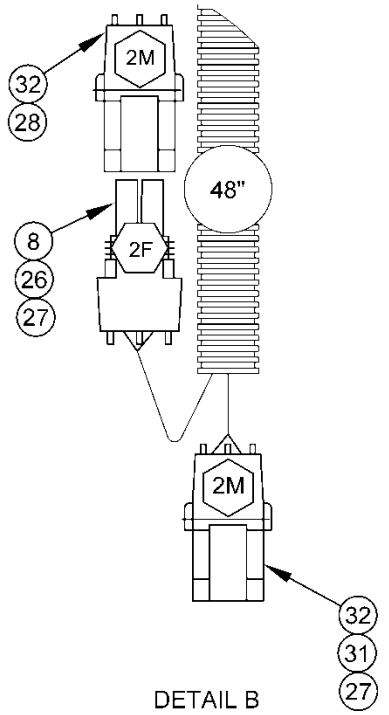
MACK GRANITE CAB TO BODY HARNESS

263-1478-017





DETAIL A



DETAIL B

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MACK GRANITE CAB TO BODY HARNESS

263-1478-017

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1478-017	HARNESS, Cab to Body, Mack Granite (See 701-8943-006 in SM 10)	-	REF
1	108-4815-188	BACKSHELL, Long Compression	-	4
2	108-4815-189	NUT, Small Compression	-	4
3	108-6461-100	PLUG, Sealing	-	22
4	108-6025-150	BOOT, 24-Pin	-	2
5	108-8411-001	RECEPTACLE, 2 Way, Deutsch DTP Series	-	1
6	108-4815-114	PLUG, Sealing, #20	-	2
7	108-4815-024	RECEPTACLE, Pin, 24-Pin	-	1
8	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	1
9	108-4815-037	RECEPTACLE, Pin, 24-Pin	-	1
10	108-4815-031	PLUG, Socket, 24-Pin	-	1
11	108-4815-021	PLUG, Socket, 24-Pin	-	1
12	108-4815-404	PIN, #20, Nickel, Plated	-	4
13	108-8411-002	PLUG, 2 Way	-	1
14	108-4815-403	PIN, #16, Nickel, Plated	-	29
15	108-4815-110	PIN, #16, Nickel, Plated	-	35
16	108-6461-011	PLUG, Str., 2 Way, Deutsch DT Series	-	5
17	108-4815-401	PIN, #12, Nickel, Plated	-	2
18	108-4815-400	PIN, #12, Nickel, Plated	-	1
19	108-4815-304	SOCKET, #20, Nickel, Plated	-	48
20	108-4815-111	SOCKET, #16, Nickel, Plated	-	48
21	108-6461-003	PLUG, Str., 4 Way	-	1
22	108-4815-301	SOCKET, #12, Nickel, Plated	-	1
23	108-6025-151	BOOT, 40-Pin	-	1
24	108-6025-007	RECEPTACLE, Flange, 40-Pin	-	1
25	108-6025-002	PLUG, 24-Socket	-	2
26	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	4
27	108-4827-132	SEAL, Cable, 16-14 AWG	-	6
28	108-4827-134	PLUG, Cavity	-	3
29	108-4827-006	CONNECTOR, Female, 3 Way, Packard	-	1
30	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	1
31	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	2
32	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	2
33	108-8470-001	CONNECTOR, Plug, Male, 3 Way	-	1
34	108-8470-003	CONNECTOR, Plug, Male, 7 Way	-	1
35	108-8470-004	SEAL, 7 Way	-	2
36	108-8470-002	SEAL, 3 Way	-	1
37	108-8470-005	PIN, Terminator	-	6
38	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	1

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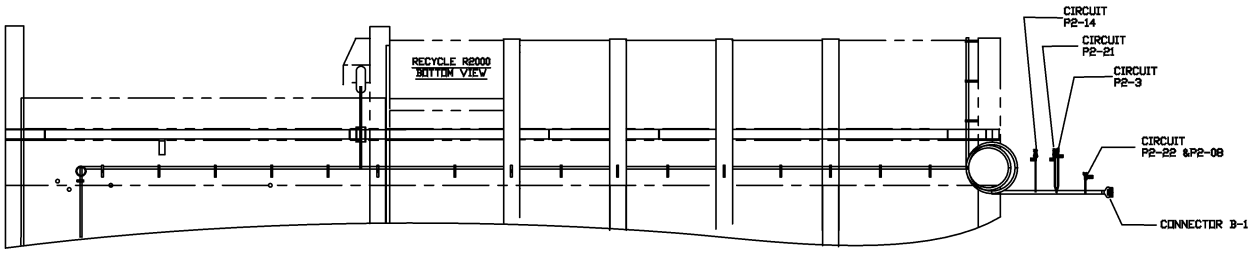
BUCKET CONTROL KIT

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SECOND ADD-ON BUCKET CONTROL KIT

254-4568-002



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SECOND ADD-ON BUCKET CONTROL KIT

254-4568-002

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-4568-002	KIT, Control, Bucket, Second, Add-On	-	REF
-1	254-4568-001	ASSEMBLY, Control, Bucket (See Pg. 3013)	-	1
-2	263-1246-009	HARNESS, Input Splitter, Bucket (See SM 10)	-	1

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SECTION 4
HYDRAULIC AND PNEUMATIC CIRCUITS

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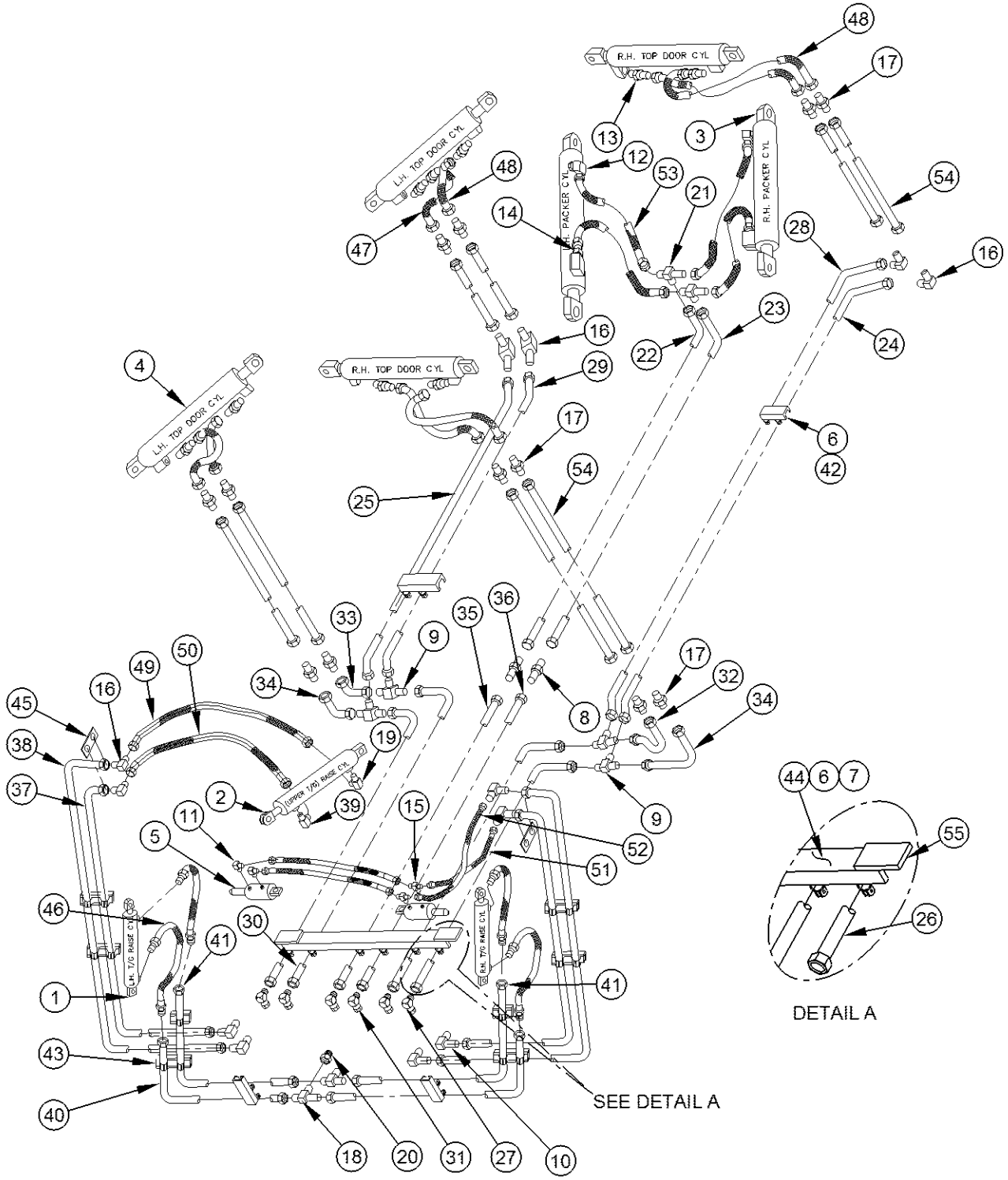
BODY HYDRAULIC KITS

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33 AND 38 YARD BODY HYDRAULIC KITS

272-5980-033, 272-5980-038



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33 AND 38 YARD BODY HYDRAULIC KITS

272-5980-033, 272-5980-038

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-5980-033	KIT, Hydraulic, Body, 33 Yd.	A	REF
-	272-5980-038	KIT, Hydraulic, Body, 38 Yd.	B	REF
1	001-6400	CYLINDER, Tailgate Raise (See Section 5)	-	2
2	001-4283	CYLINDER, Container, Mech. (See Section 5)	-	1
3	001-6069	CYLINDER, Packer (See Section 5)	-	2
4	001-6142	ASSEMBLY, Cylinder, Lift Arm (See Section 5)	-	4
5	001-6720	CYLINDER, Tailgate Lock (See Section 5)	-	2
6	036-1474-004	ASSEMBLY, Clamp, Tubing, Hydraulic, 1/2''	-	42
7	036-1474-006	ASSEMBLY, Clamp, Hydraulic Tubing, 3/4"	-	8
8	054-3007-008	UNION, Tube to Tube, 1-1/16"-12 x 3/4, #12	-	2
9	054-3139-006	TEE, Union, Tube to Tube to Tube, 3/4"-16, 1/2", #8	-	5
10	054-3185-008	ELBOW, Male, 90°, Union, 1/2"	-	4
11	054-3340-006	ELBOW, Male, 90°, Tube to Str. Thd. 3/4"-16 x 1/2", #8	-	2
12	054-3340-008	ELBOW, 90°, Male, Tube to Str., 3/4"	-	2
13	054-3341-006	CONNECTOR, Male, Tube to Str. Thd., 3/4"-16 x 1/2", #8	-	8
14	054-3341-008	CONNECTOR, Male, Tube to Str., 3/4"	-	2
15	054-3344-006	TEE, Branch, Male, Tube to Str. Thd.,3/4"-16 x 1/2"	-	2
16	054-3533-006	ELBOW, Union, Bulkhead, Tube to Tube, 3/4"-16 x 1/2", #8	-	8
17	054-3535-006	UNION, Bulkhead, Tube to Tube, 3/4"-16 x 1/2"	-	12
18	054-3537-006	TEE, Branch, 1/2" JIC to 3/8" NPT	-	1
19	054-3666-007	ELBOW, NPT, JIC, 90°, 3/8"-18 x 3/4"-16	-	1
20	054-8092	RESTRICTOR, Fitting, Tailgate, 37° JIC Male, 1/2" x 3/4"-16	-	1
21	054-7606-012	TEE, Male, Bulkhead, 37° Flare, 1-1/16-12 x 3/4"	-	2
22	054-9250-003	TUBE, Hydraulic, Packer, Subframe, 3/4"	A	1
-22a	054-9250-020	TUBE, Hydraulic, Packer, Subframe, 3/4", 38 Yd.	B	1
23	054-9250-004	TUBE, Hydraulic, Packer, Subframe, 3/4"	A	1
-23a	054-9250-021	TUBE, Hydraulic, Packer, Subframe, 3/4", 38 Yd.	B	1
24	054-9250-005	TUBE, Hydraulic, Container, Mech., 1/2", CS	-	1
25	054-9250-006	TUBE, Hydraulic, Container, Mech., 1/2", SS	-	1
26	354-0198	TUBE, Hydraulic, Subframe, Outside	A	2
-26a	354-0200	TUBE, Hydraulic, Subframe, Outside	B	2
27	054-2988-006	ELBOW, Male to Female Swivel, 90°, 37° Flare, Swivel Tube 3/4"-16 x 1/2", #8	-	4
28	054-9250-010	TUBE, Hydraulic, Container, Mech., 1/2", CS	-	1
29	054-9250-011	TUBE, Hydraulic, Container, Mech., 1/2", SS	-	1
30	354-0199	TUBE, Hydraulic, Subframe, 33 Yd.	A	2
-30a	354-0201	TUBE, Hydraulic, Subframe, 38 Yd.	B	2
31	054-2988-008	ELBOW, 90°, Female, Tube to Swivel, 3/4", 37° Flare	-	2
32	054-9250-014	TUBE, Hydraulic, Container, Mech., 1/2", CS	-	1
33	054-9250-015	TUBE, Hydraulic, Container, Mech., 1/2", SS	-	1
34	054-9250-019	TUBE, Hydraulic, Container, Mech., 1/2"	-	2
35	TAS-E108	TUBE, Hydraulic, 3/4"	A	1
-35a	TAS-E120	TUBE, Hydraulic, 3/4"	B	1
36	TAS-E106	TUBE, Hydraulic, 1/2"	A	1
-36a	TAS-E118	TUBE, Hydraulic, 1/2"	B	1
37	054-9626	TUBE, Hydraulic, Upper Tailgate	-	2
38	054-9627	TUBE, Hydraulic, Upper Tailgate	-	2
39	054-9851	RESTRICTOR, Fitting, 90°	-	1
40	054-9859-001	TUBE, Tailgate Circuit, 31"	-	2

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33 AND 38 YARD BODY HYDRAULIC KITS

272-5980-033, 272-5980-038

ITEM	PART NO.	DESCRIPTION	EFF	QTY
41	054-9859-002	TUBE, Tailgate Circuit, 58"	-	2
42	207-2938-003	CHANNEL, Unistrut, 6”	-	2
43	207-2938-006	CHANNEL Clamp, Hydraulic Tubing	-	8
44	207-2938-012	CHANNEL, Hydraulic, Tube Clamp, 25”	-	4
45	211-8555	BRACKET, Bulkhead	-	2
46	QC2-EFGF-019	HOSE, 3/8", 37° JIC Male to Female Swivel, Str. Thd., 19"	-	4
47	QC3-FFFF-022	HOSE, 1/2", 37° JIC Female Swivel, 22”	-	4
48	QC3-FFFF-035	HOSE, 1/2", 37° JIC Female Swivel, 35”	-	4
49	QC3-FFFF-057	HOSE, 1/2", 37° JIC Female Swivel, 57”	-	2
50	QC3-FFFF-068	HOSE, 1/2", 37° JIC Female Swivel, 68”	-	2
51	QC3-FFFF-070	HOSE, 1/2", 37° JIC Female Swivel, 70”	-	1
52	QC3-FFFF-079	HOSE, 1/2", 37° JIC Female Swivel, 79”	-	1
53	QC5-FHFH-043	HOSE, 3/4", 37° JIC Female Swivel to Male, 43"	-	4
54	TAS-C056	TUBE, Hydraulic, 1/2"	-	8
55	211-3100	BRACKET, Pipe, 1/4" x 2" HRS	A	2

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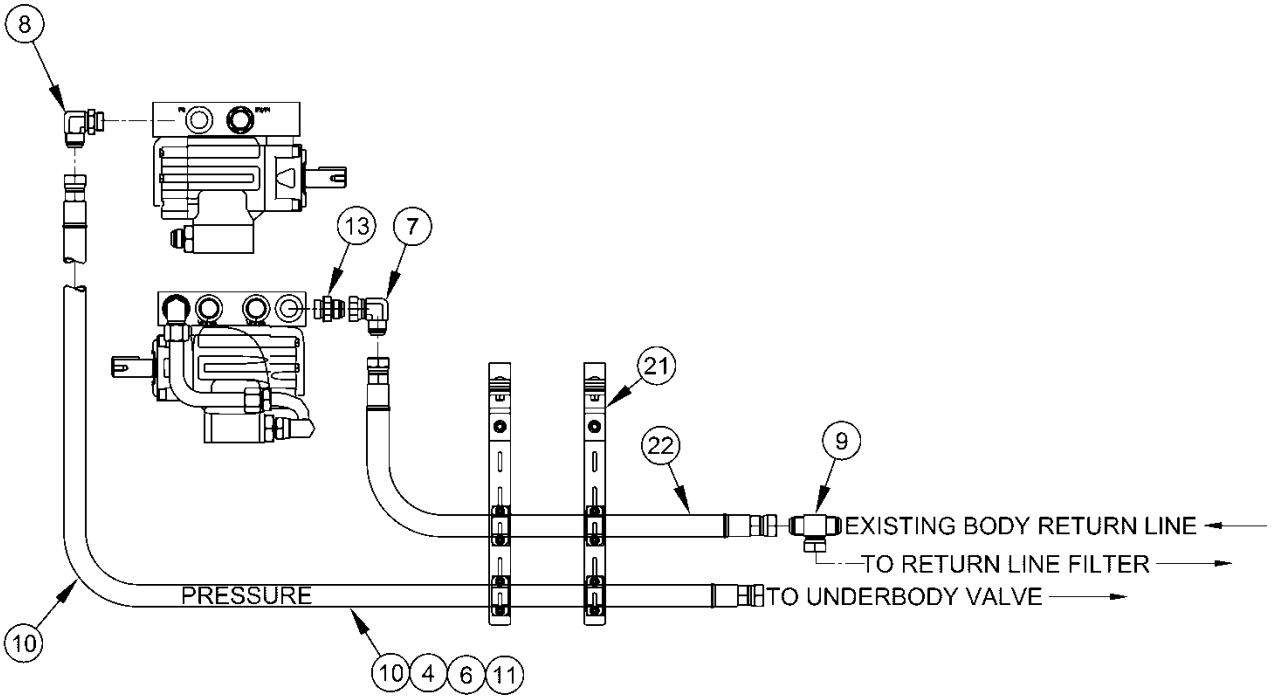
PTO MOUNT KITS WITH PUMP

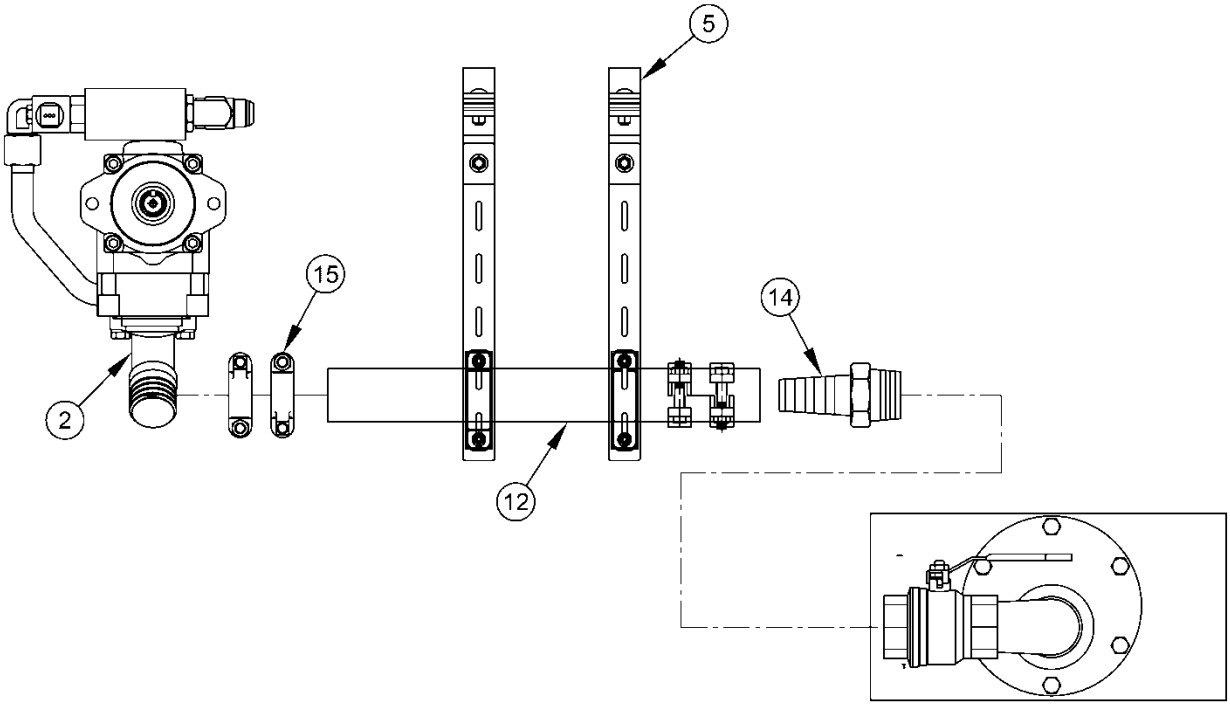
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OAI DENISON PTO PUMP KIT

372-2289





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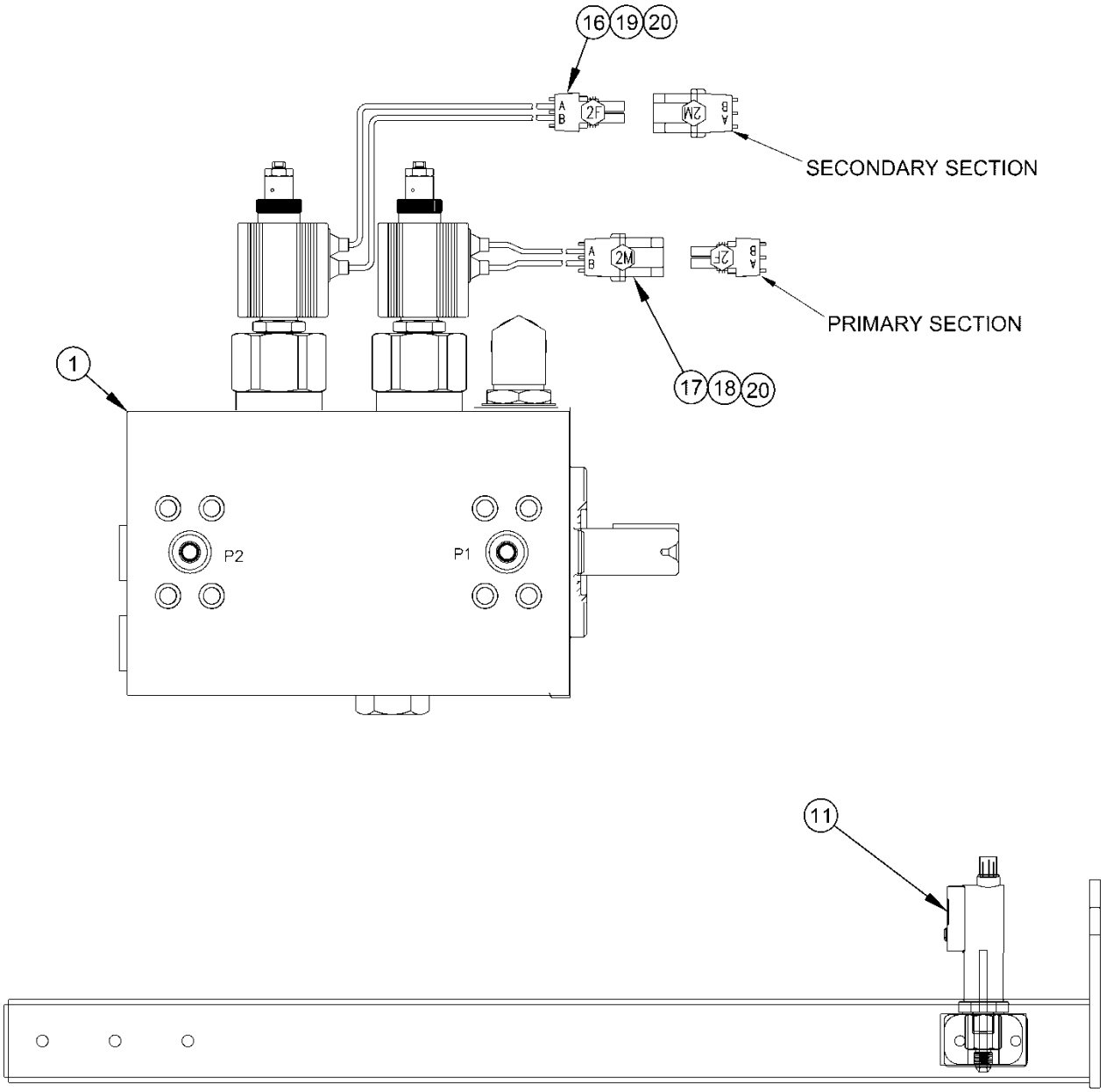
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OAI DENISON PTO PUMP KIT

372-2289



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OAI DENISON PTO PUMP KIT

372-2289

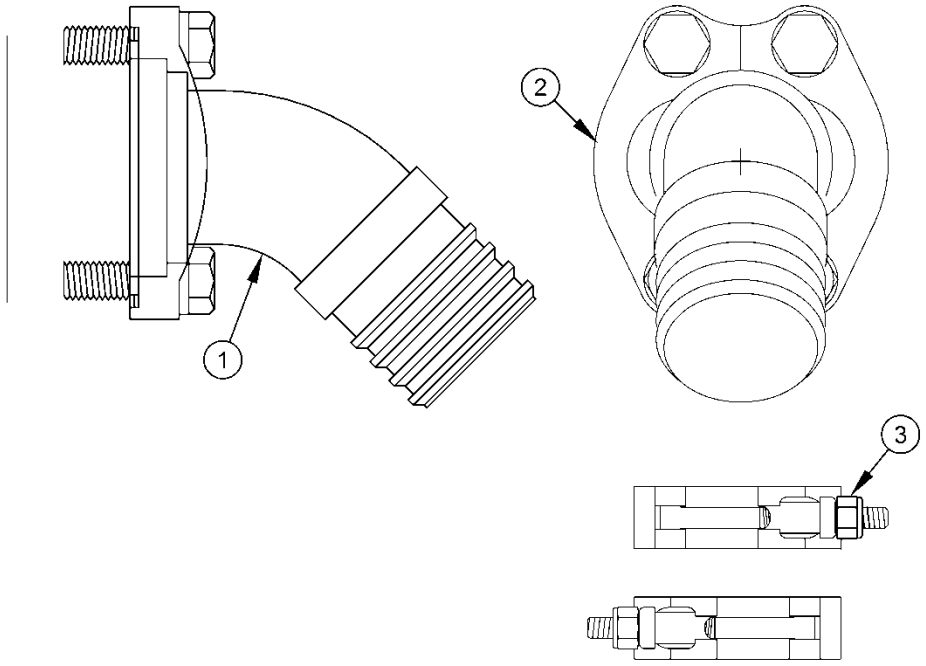
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2289	KIT, Pump, PTO, Denison, OAI	-	REF
1	219-2292	ASSEMBLY, Pump (See Section 5)	-	1
2	054-8667	KIT, Suction, 45°, 2” (See Pg. 4015)	-	1
-3	108-7919-005	KIT, Gauge, Pressure (See Pg. 4017)	-	1
4	035-2727	GUARD, Fiber, Hose, 2.19” Min. ID	-	12'
5	311-4637-003	ASSEMBLY, Bracket, Hose Hanger (See Pg. 4017)	-	4
6	036-1499	CLAMP, Bandit, 3/8” Wide, 2” Dia.	-	2
7	054-2988-010	ELBOW, Female, 90°, Tube to Swivel, 1”, 37° Flare	-	1
8	054-3340-010	ELBOW, 90°, Male, Tube to Str. Thd., 7/8"-14	-	1
9	054-3623-010	TEE, Swivel, 1”	-	1
10	057-1719	HOSE, High Pressure, Female to Female, 1”	-	10'
11	057-1719-010	HOSE, High Pressure, 1" Female Fitting, 1-5/16"-12 Thd.	-	2
12	057-2172	HOSE, Suction, 2”	-	10'
13	054-3341-010	CONNECTOR, Male, Tube to Str., 1’’	-	1
14	058-8579-006	FITTING, Suction Hose, Split Flange, 2” NPT	-	1
15	074-4498-032	CLAMP, Suction Line, 2’’	-	4
16	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	2
17	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	2
18	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	4
19	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	4
20	108-4827-132	SEAL, Cable, 16-14 AWG	-	8
21	311-4637-002	ASSEMBLY, Bracket, Hose Hanger (See Pg. 4019)	-	4
22	057-2355-086	ASSEMBLY, Hose, 1” Female JIC-Female JIC	-	1

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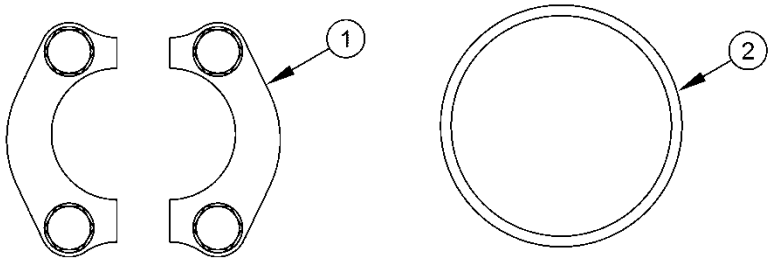
2" 45° SUCTION KIT

054-8667



4-BOLT FLANGE KIT

054-8736



FLANGE O-RING

HEIL NUMBER	SAE FLANGE SIZE	O-RING PART NO.	MIN DYNAMIC PRESSURE RATING
054-8736-001	1/2"	054-8736-010	5000 PSI
054-8736-002	3/4"	054-8736-011	5000 PSI
054-8736-003	1"	054-8736-012	5000 PSI
054-8736-004	1-1/4"	054-8736-013	4000 PSI
054-8736-005	1-1/2"	054-8736-014	3000 PSI
054-8736-006	2"	054-8668-005	2500 PSI
054-8736-007	2-1/2"	054-9888-003	2500 PSI

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2" 45° SUCTION KIT

054-8667

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	054-8667	KIT, Suction, 45°, 2”	-	REF
1	054-8667-001	ELBOW, Flange Head, SAE, 45°	-	1
2	054-8736-006	FLANGE, 4-Bolt SAE, 2” (See Pg. 4015)	-	1
3	074-4498-032	CLAMP, Hose, Suction, 2”	-	2

4-BOLT FLANGE KIT

054-8736

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	054-8736	KIT, Flange, 4-Bolt	-	REF
1	054-8736-xxx	FLANGE, 4-Bolt SAE, 2”	-	2
2	054-xxxx-xxx	O-RING, VITON, 2500 PSI	-	1

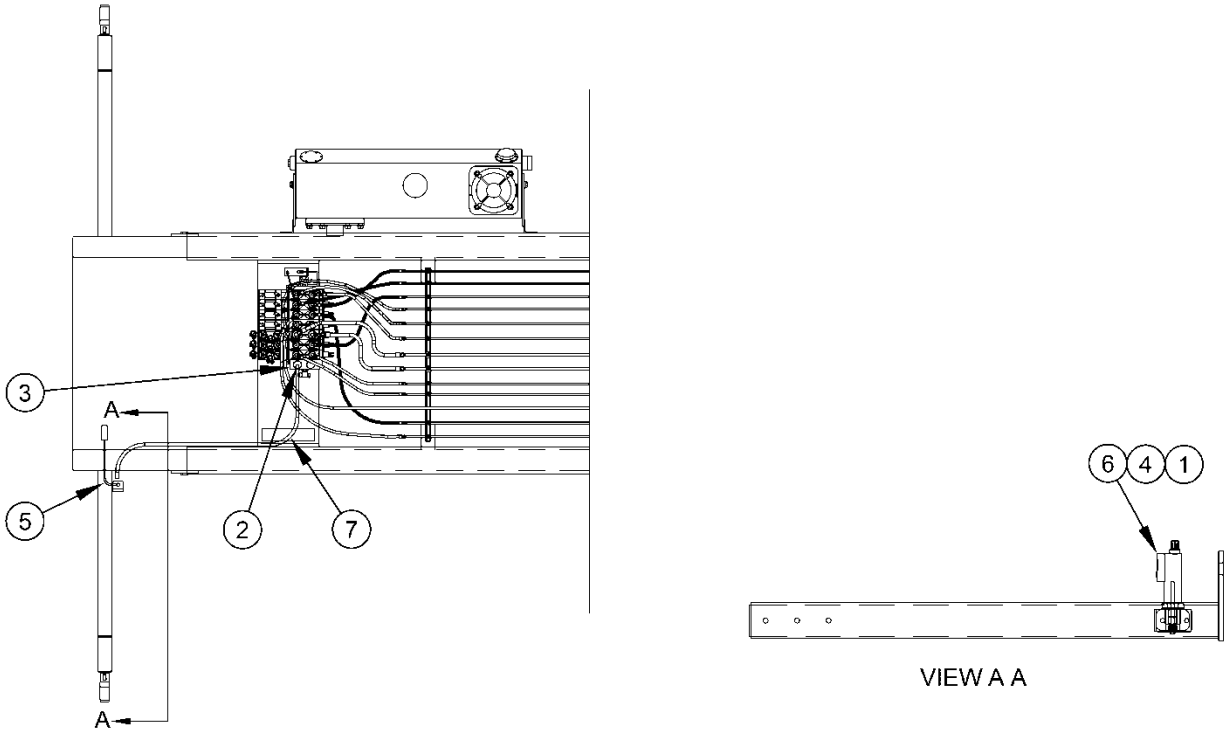
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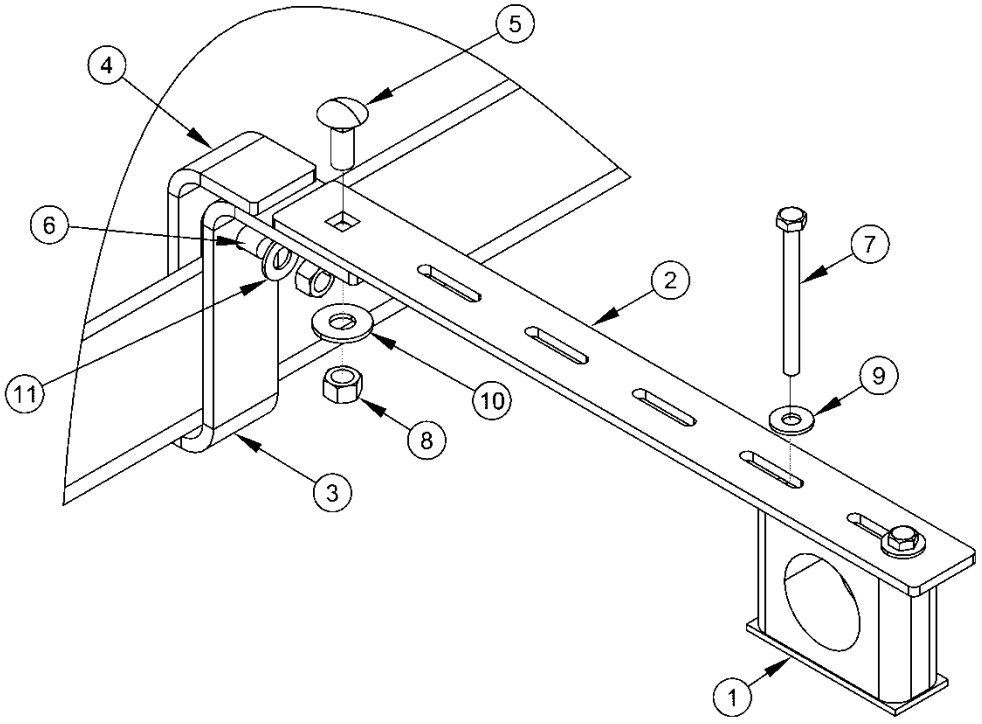
PRESSURE GAUGE KIT

108-7919-005



HOSE HANGER BRACKET ASSEMBLIES

311-4637-001, 311-4637-003



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PRESSURE GAUGE KIT

108-7919-005

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-7919-005	KIT, Gauge, Pressure	-	REF
1	036-1597-006	CLAMP, Tube, Hydraulic, 7/8"	-	1
2	054-3340-003	ELBOW, 90°, Male, Tube to Str., 1/4"	-	1
3	054-3609-017	REDUCER, Boss, Expander, SAE, 7/16"-20 x 1-1/16"-12"	-	1
4	063-0114	SWITCH, Pressure	-	1
5	263-1302-036	CORD, Set	-	1
6	354-2522	ADAPTER, 1/4" BSP x 1/4" JIC	-	1
7	QA1-FCFC-072	ASSEMBLY, Hose, 1/4", 37° JIC Female Swivel, 72"	-	1

HOSE HANGER BRACKET ASSEMBLIES

311-4637-001, 311-4637-003

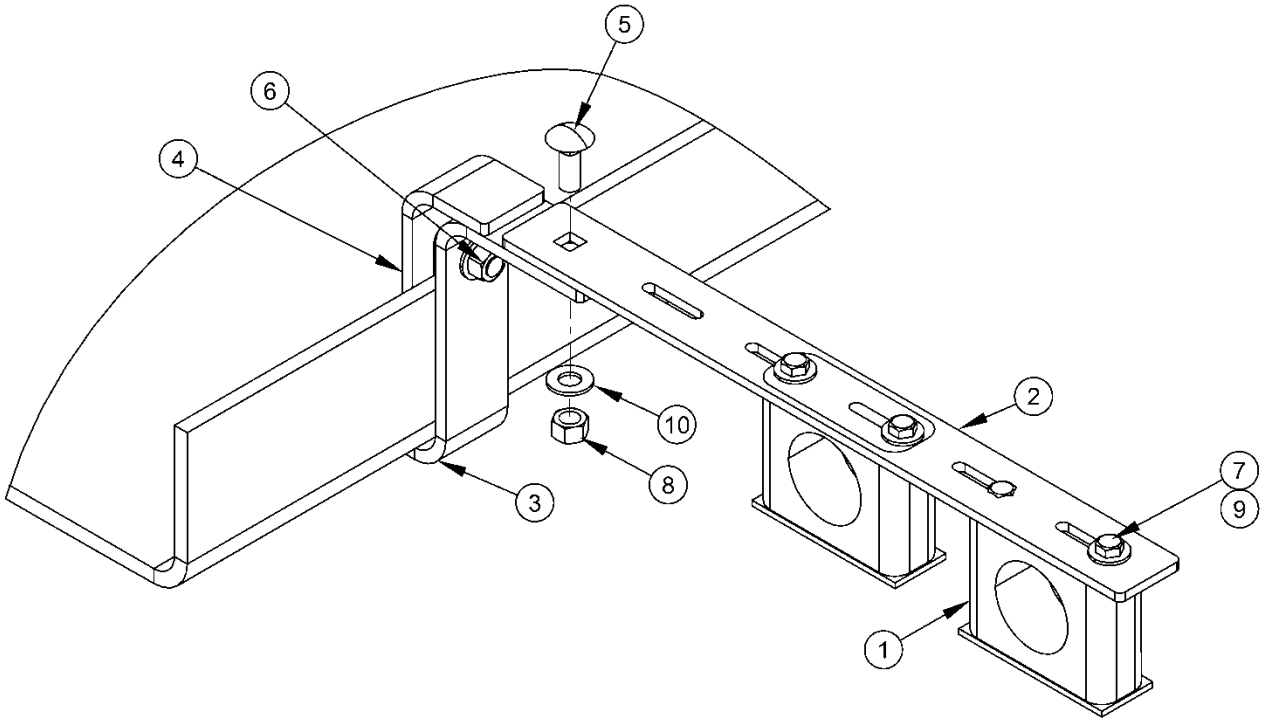
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-4637-001	ASSEMBLY, Bracket, Hose Hanger	A	REF
-	311-4637-003	ASSEMBLY, Bracket, Hose Hanger	B	REF
1	036-1597-010	CLAMP, Tube, Hydraulic, 1-3/4"	A	1
-1a	036-1597-013	CLAMP, Tube, Hydraulic, 2-1/2"	B	1
2	211-9851-002	BRACKET, Tube, 7 Ga.	-	1
3	311-2198-001	BRACKET, Hose Hanger	-	1
4	311-2198-002	BRACKET, Hose Hanger	-	1
5	FSP020920	BOLT, Carriage, 3/8"-16 x 1'', Plated	-	1
6	FSP020924	BOLT, Carriage, 3/8"-16 x 1-1/2'', Plated	-	1
7	FSP070740	HHCS, 1/4''-20 x 3'', Gr. 5, Plated	-	2
8	FSP230900	NUT, Lock, 3/8''-16, Gr. 5, Plated	-	2
9	FSP510700	WASHER, Flat, 1/4'', Std., Plain	-	2
10	FSP510900	WASHER, Flat, 3/8'', Std., Plain	A	1
11	FSP520900	WASHER, Flat, 3/8'', SAE, Plain	A	1

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HOSE HANGER BRACKET ASSEMBLY

311-4637-002



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HOSE HANGER BRACKET ASSEMBLY

311-4637-002

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-4637-002	ASSEMBLY, Bracket, Hose Hanger	-	REF
1	036-1597-010	CLAMP, Tube, Hydraulic, 1-3/4"	-	2
2	211-9851-002	BRACKET, Tube, 7 Ga.	-	1
3	311-2198-001	BRACKET, Hose Hanger	-	1
4	311-2198-002	BRACKET, Hose Hanger	-	1
5	FSP020920	BOLT, Carriage, 3/8"-16 x 1", Plated	-	1
6	FSP020924	BOLT, Carriage, 3/8"-16 x 1-1/2", Plated	-	1
7	FSP070740	HHCS, 1/4"-20 x 3", Gr. 5, Plated	-	4
8	FSP230900	NUT, Lock, 3/8"-16, Gr. 5, Plated	-	2
9	FSP510700	WASHER, Flat, Std., 1/4", Plated	-	4
10	FSP520900	WASHER, Flat, SAE, 3/8", Plated	-	2

COMMERCIAL PUMP KIT

372-2855-001

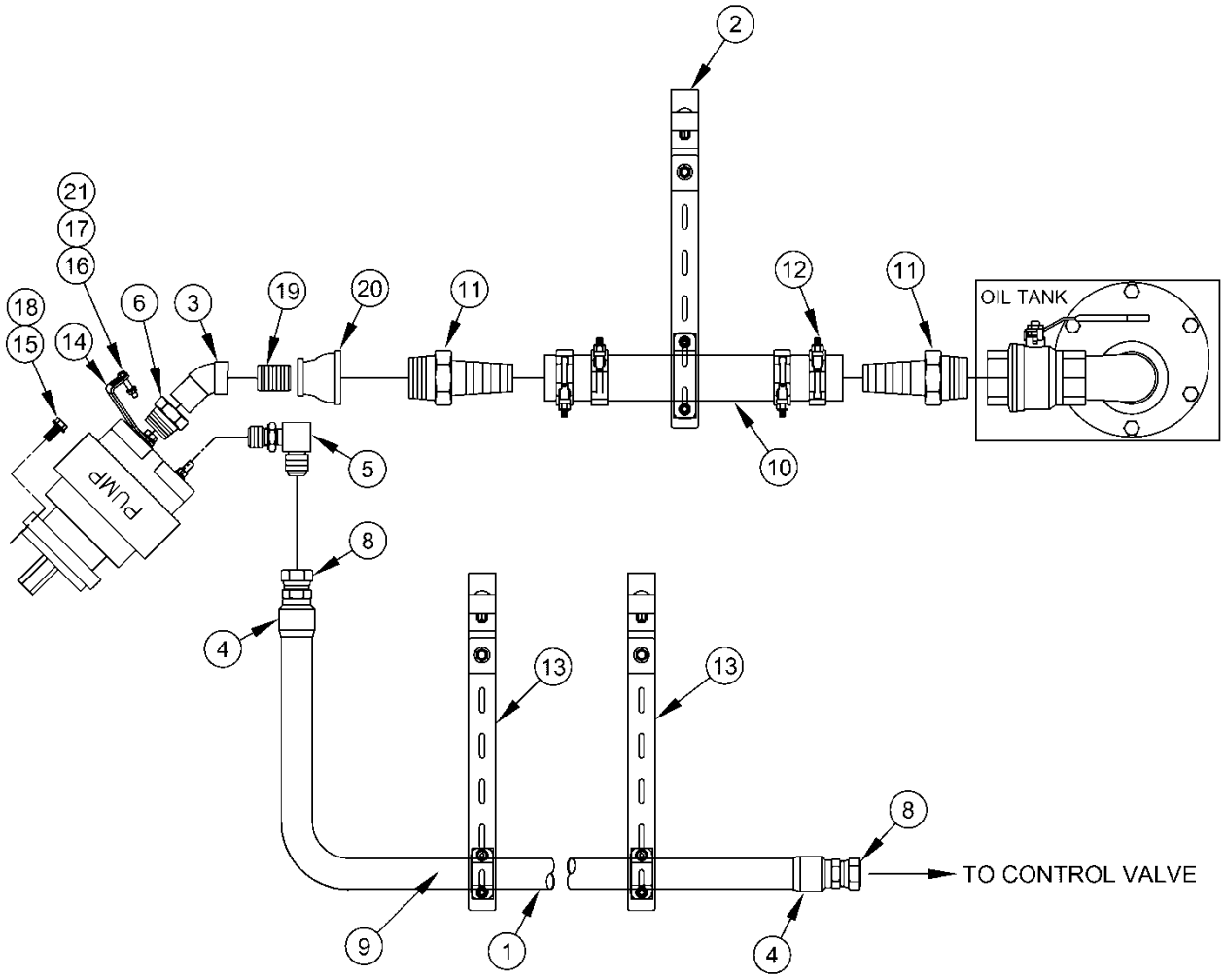
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-2623	KIT, Pump, Commercial	-	REF
-1	272-2623	KIT, Pump, Direct Mount (See Pg. 4021)	-	1
-2	219-2315	PUMP, Gear, Rear Ported (See Section 5)	-	1

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DIRECT MOUNT PUMP KIT

272-2623



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DIRECT MOUNT PUMP KIT

272-2623

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-2623	KIT, Pump, Direct Mount	-	REF
1	035-2727	GUARD, Hose, Fiber, 2.19" ID	-	14’
2	311-4637-003	ASSEMBLY, Bracket, Hose Hanger (See Pg. 4017)	-	3
3	FS802200	ELBOW, Street, 45°, 1-1/4” NPT	-	1
4	036-1499	CLAMP, Band-It, Wide, 3/8”	-	2
5	054-3237-007	ELBOW, Male, Reducing, 90 ,		
		Tube 1-5/16”-12 x 1" to Str. Thd. 1”-5/8”-12 x 1-1/4”	-	1
6	054-4194-010	ADAPTER, Female, Str. Thd. to Female Thd., 1-5/8”-12 x 1-1/4”	-	1
-7	NA	-	-	-
8	057-1719-010	FITTING, Female, 1” (1-5/16”-12)	-	2
9	057-1719	HOSE, High Pressure, 1”	-	14’
10	057-2172	HOSE, Suction	-	12’
11	058-8579-006	FLANGE, Split, Fitting, 2”	-	2
12	074-4498-032	CLAMP, Suction Line, 2”	-	4
13	311-4637-001	ASSEMBLY, Bracket, Hose Hanger (See Pg. 4017)	-	3
14	311-3182	BRACKET, Pump Mount, 7 Ga., 45,000 Min. Yield HRS	-	1
15	FSP071122	HHCS, 1/2''-13 x 1-1/4'', Gr. 5, Plated	-	4
16	FSP080930	HHCS, 3/8” x 2”, Gr. 8, Plated	-	1
17	FSP520900	WASHER, Flat, 3/8” SAE, Plain	-	1
18	FSP541100	WASHER, Lock, 1/2'', Plain	-	4
19	FS892200	NIPPLE, Extra Heavy, Black, 1-1/4”	-	1
20	FS933023	REDUCER, Bell, Male to Female, 2” x 1-3/8'', NPT	-	1
21	047-2513-003	NUT, Lock, Flange, 3/8”-16	-	1

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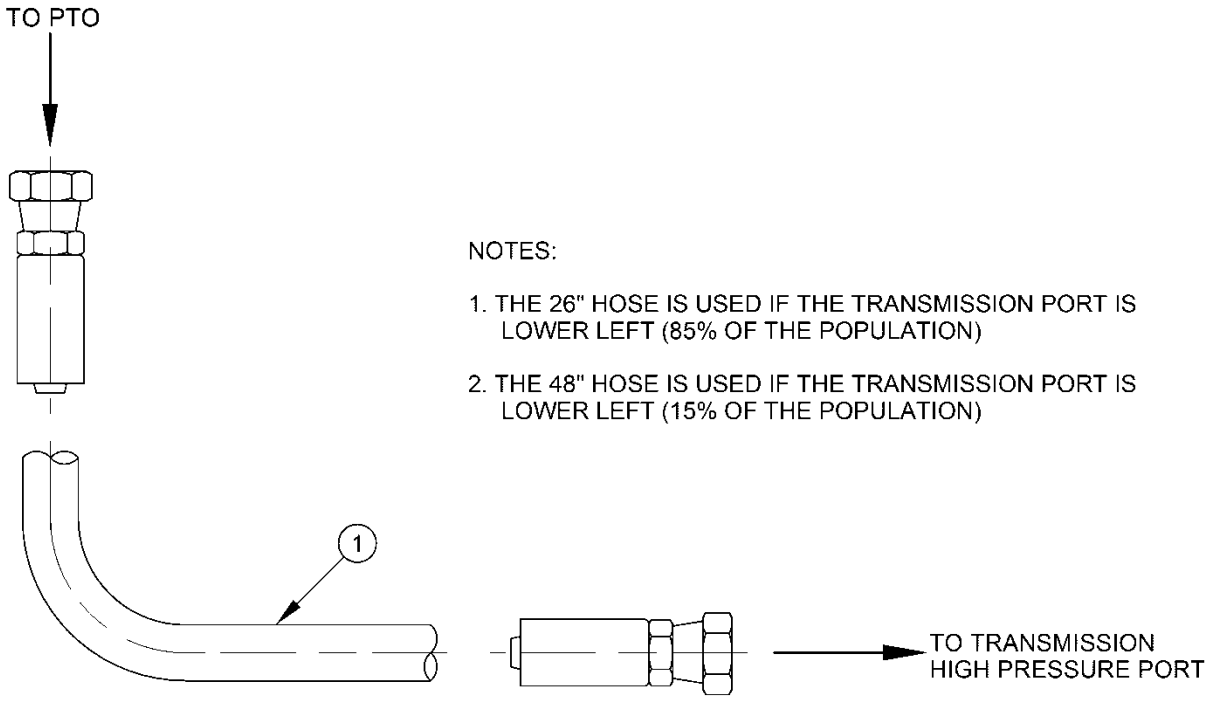
PTO TRANSMISSION MOUNT KIT

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HOT SHIFT HOSE KIT

252-9370



NOTES:

1. THE 26" HOSE IS USED IF THE TRANSMISSION PORT IS LOWER LEFT (85% OF THE POPULATION)

2. THE 48" HOSE IS USED IF THE TRANSMISSION PORT IS LOWER LEFT (15% OF THE POPULATION)

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HOT SHIFT HOSE KIT

252-9370

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	252-9370	KIT, Hose, Hot Shift	-	REF
1	HA1-FCFC-026	HOSE, Hot Shift, 1/4", 37° JIC Female Swivel, Pipe, 26"	-	0.85'
-2	HA1-FCFC-048	HOSE, Hot Shift, 1/4", 37° JIC Female Swivel, Pipe, 48"	-	0.15'

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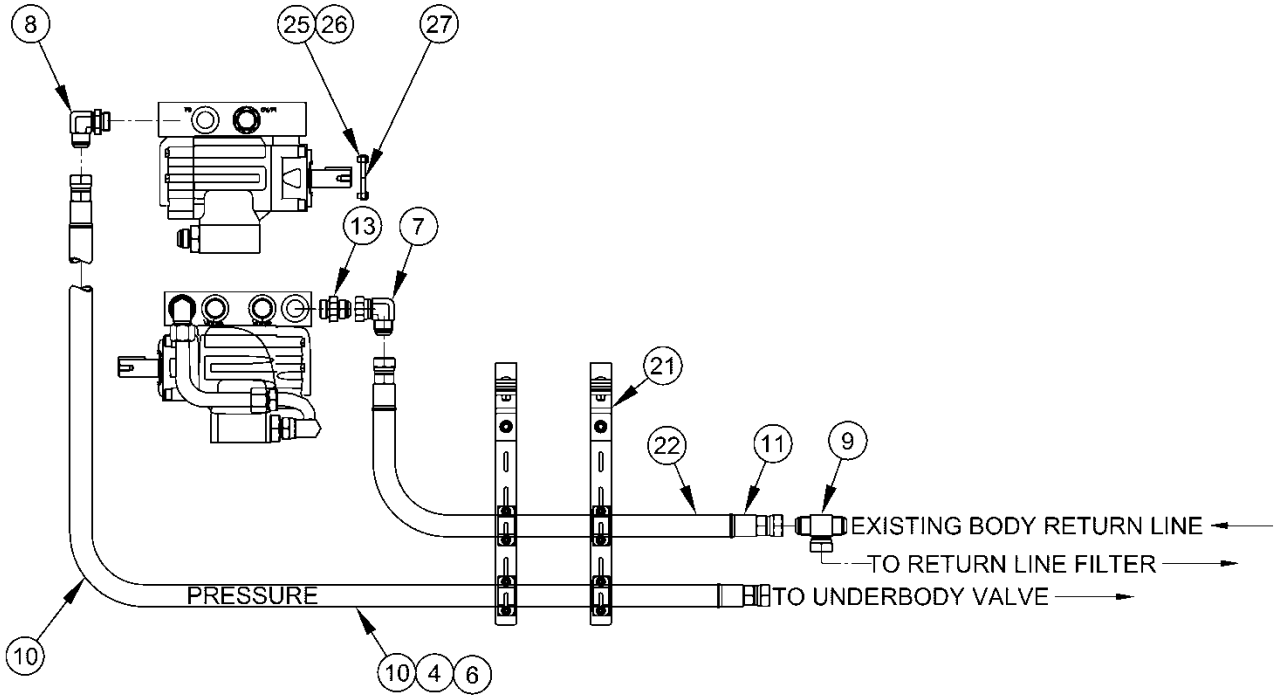
FRONT MOUNT PUMP KITS

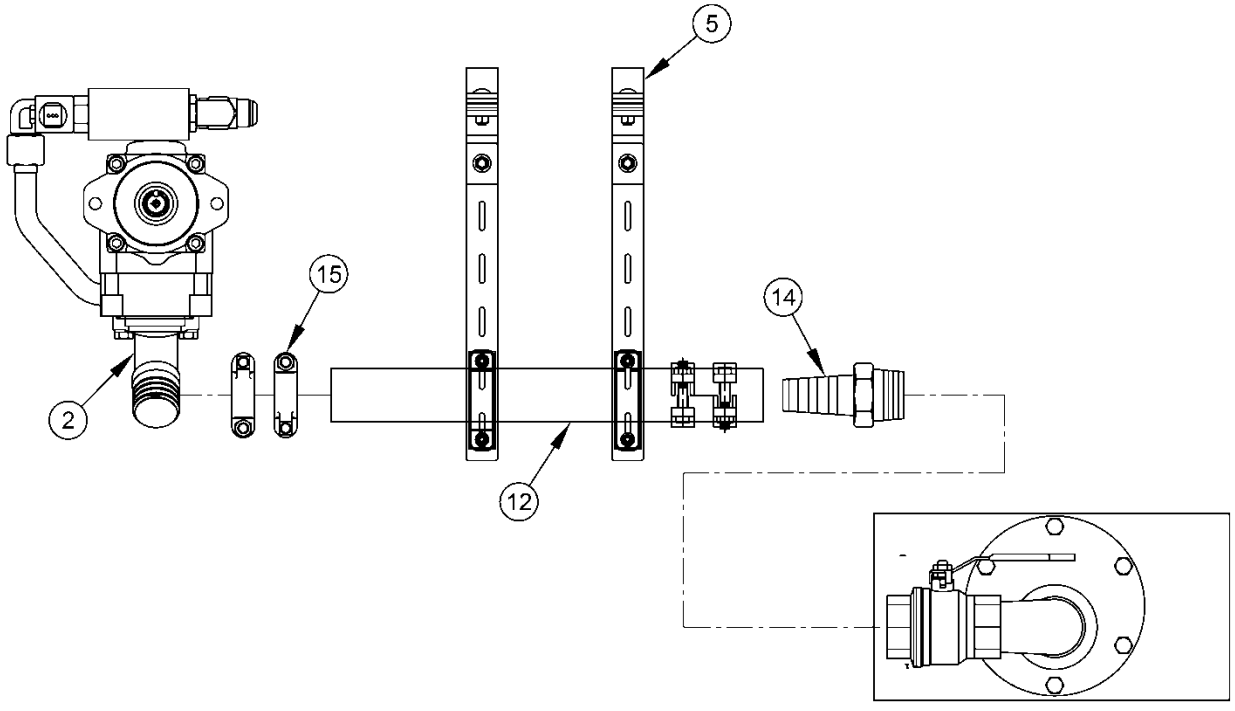
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OAI DENISON FRONT MOUNT PUMP KIT

372-2288





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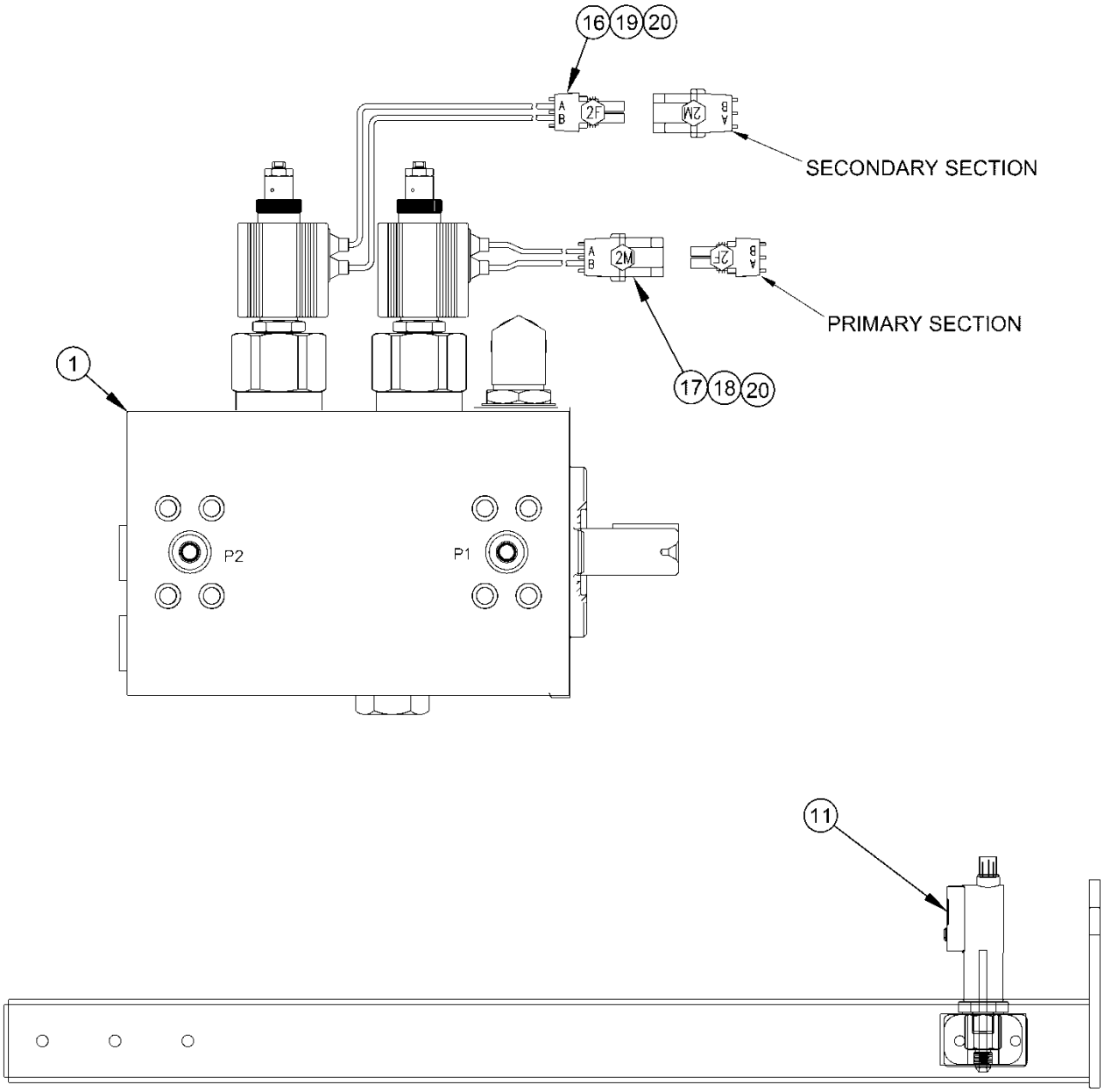
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OAI DENISON FRONT MOUNT PUMP KIT

372-2288

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2288	KIT, Pump, Front Mount, Denison, OAI	-	REF
1	219-2291	ASSEMBLY, Pump (See Section 5)	-	1
2	054-8667	KIT, Suction, 45°, 2” (See Pg. 4015)	-	1
-3	108-7919-005	KIT, Gauge, Pressure (See Pg. 4017)	-	1
4	035-2727	GUARD, Fiber, Hose, 2.19” Min. ID	-	20'
5	311-4637-003	ASSEMBLY, Bracket, Hose Hanger (See Pg. 4017)	-	4
6	036-1499	CLAMP, Band It, Fiber Guard	-	2
7	054-2988-010	ELBOW, Female, 90°, Tube to Swivel, 1”, 37° Flare	-	1
8	054-3340-010	ELBOW, 90°, Male, Tube to Str. Thd., 7/8"-14	-	1
9	054-3623-010	TEE, Swivel, 1”	-	1
10	057-1719	HOSE, High Pressure, Female to Female, 1”	-	20'
11	057-1719-010	HOSE, High Pressure, 1" Female Fitting, 1-5/16"-12 Thd.	-	2
12	057-2172	HOSE, Suction, 2”	-	17'
13	054-3341-010	CONNECTOR, Male, Tube to Str., 1’’	-	1
14	058-8579-006	FITTING, Suction Hose, Split Flange, 2” NPT	-	1
15	074-4498-032	CLAMP, Suction Line, 2’’	-	4
16	108-4827-003	CONNECTOR, Male, 2 Way, Packard	-	2
17	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	2
18	108-4827-111	TERMINAL, Male, 16-14 AWG, Packard	-	4
19	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	4
20	108-4827-132	SEAL, Cable, 16-14 AWG	-	8
21	311-4637-002	ASSEMBLY, Bracket, Hose Hanger (See Pg. 4019)	-	4
22	057-2355-136	ASSEMBLY, Hose, 1” Female JIC-Female JIC	-	1
25	FS541000	WASHER, Lock, 7/16”, Plain	-	2
26	FSP071126	HHCS, 1/2"-13 x 1-3/4”, Gr. 5, Plated	-	2
27	074-4879-001	ADAPTER, Pump	-	1

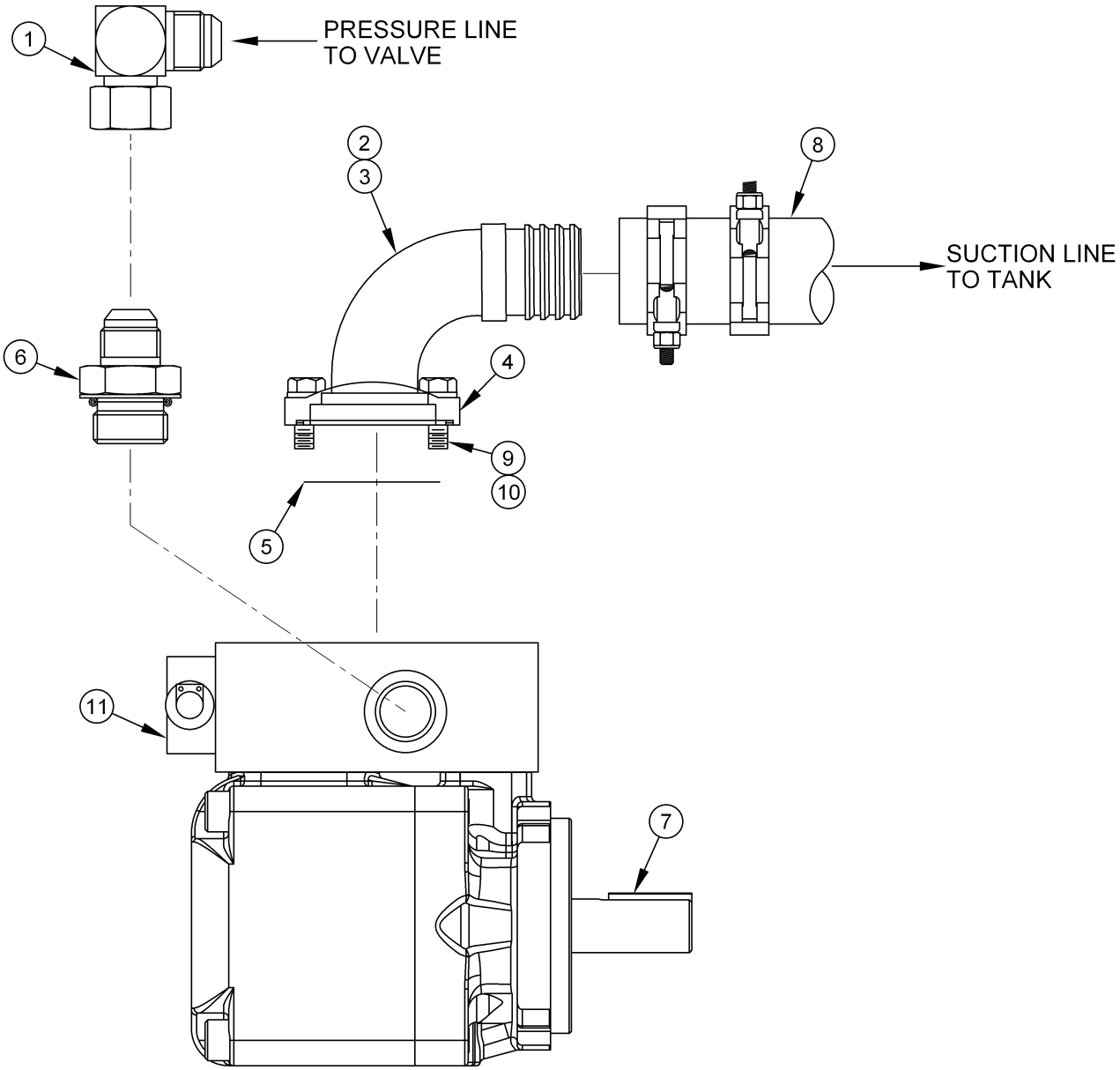
Note: Items 23 and 24 are Not Available.

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SINGLE VANE DENISON FRONT MOUNT PUMP KIT

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SINGLE VANE DENISON FRONT MOUNT PUMP KIT

372-5363

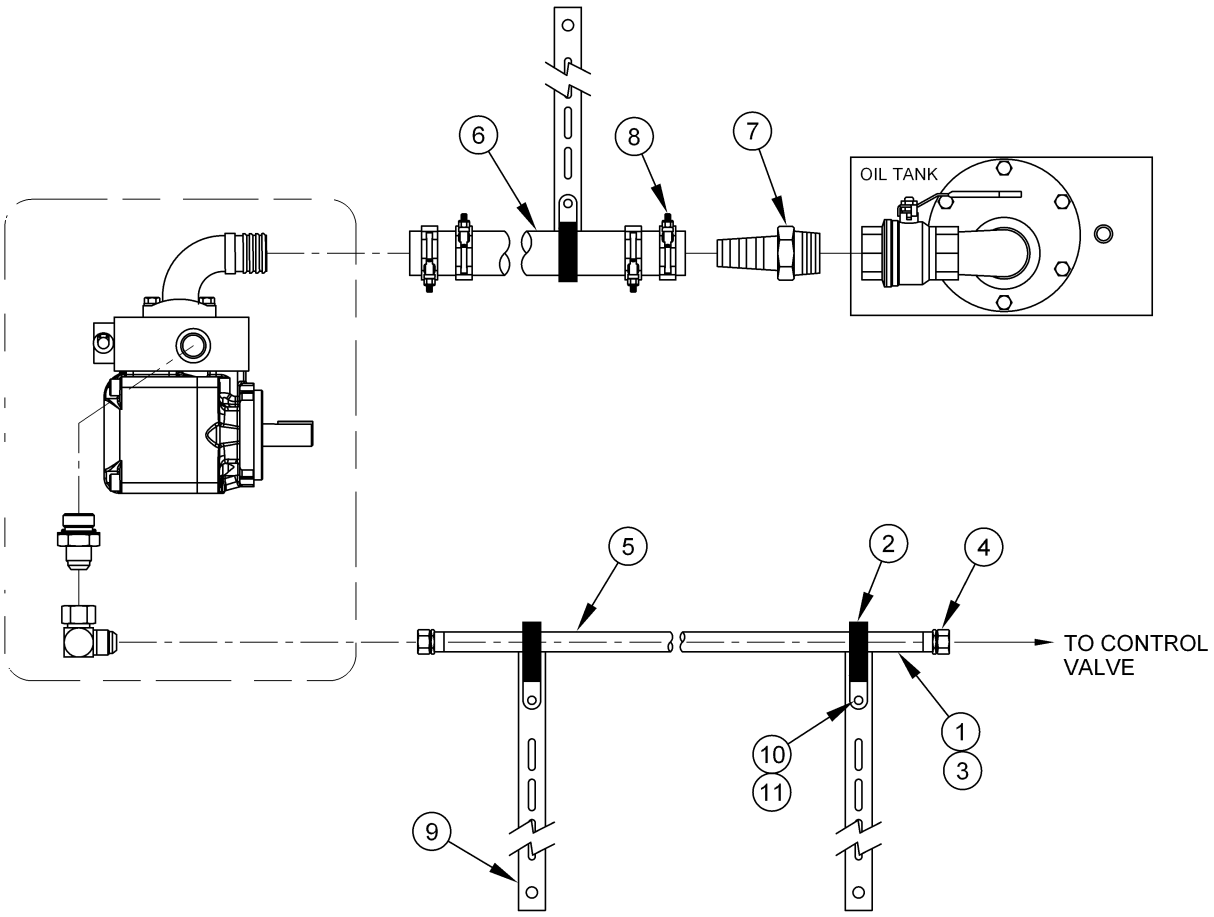
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5363	KIT, Pump, Front Mount, Denison, Single Vane	-	REF
1	054-2988-010	ELBOW, Female, 90°, Tube to Swivel, 1”, 37° Flare	-	1
2	054-8667-001	ELBOW, Flange Head, SAE, 45°	-	1
3	054-8668-001	FLANGE, Suction, 90°	-	1
4	054-8668-002	FLANGE, Half, SAE	-	2
5	054-8668-005	O-RING, SAE	-	1
6	058-3205-014	REDUCER, Str. Thd., 1”, 37° Flare	-	1
7	219-2321	PUMP, Front Mount, Denison, T7D (See Section 5)	-	1
8	372-5364	KIT, Hose, Front Mount, Denison, Single Vane (See Pg. 4035)	-	1
9	FSP081144	HHCS, 1/2’’-13 x 3-1/2’’, Gr. 8, Plated	-	4
10	FSP551100	WASHER, Lock, 1/2”, Plated	-	4
11	031-6427-002	VALVE, Shut-Off, Pump (See Section 5)	-	1

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SINGLE VANE DENISON FRONT MOUNT HOSE KIT

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SINGLE VANE DENISON FRONT MOUNT HOSE KIT

372-5364

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5364	KIT, Hose, Front Mount, Denison, Single Vane	-	REF
1	035-2727	GUARD, Fiber, Hose, 2.19” Min. ID	-	16’
2	036-1295-007	CLAMP, Tube/Wire, 2-1/2"	-	12
3	036-1499	CLAMP, Bandit, 3/8” Wide, 2” Dia.	-	2
4	057-1719-010	HOSE, High Pressure, 1" Female Fitting, 1-5/16"-12 Thd.	-	2
5	057-1719	HOSE, High Pressure, Female to Female, 1”	-	16’
6	057-2172	HOSE, Suction, 2”	-	17’
7	058-8579-006	FITTING, Suction Hose, Split Flange, 2” NPT	-	1
8	074-4498-032	CLAMP, Suction Line, 2’’	-	4
9	211-9851-003	BRACKET, Tube, 3/16” HRS	-	8
10	FS070920	HHCS, 3/8”-16 x 1”, Gr. 5	-	14
11	FS230900	NUT, Lock, 3/8”-16, Gr. 5	-	14

Note: Item 12 is Deleted.

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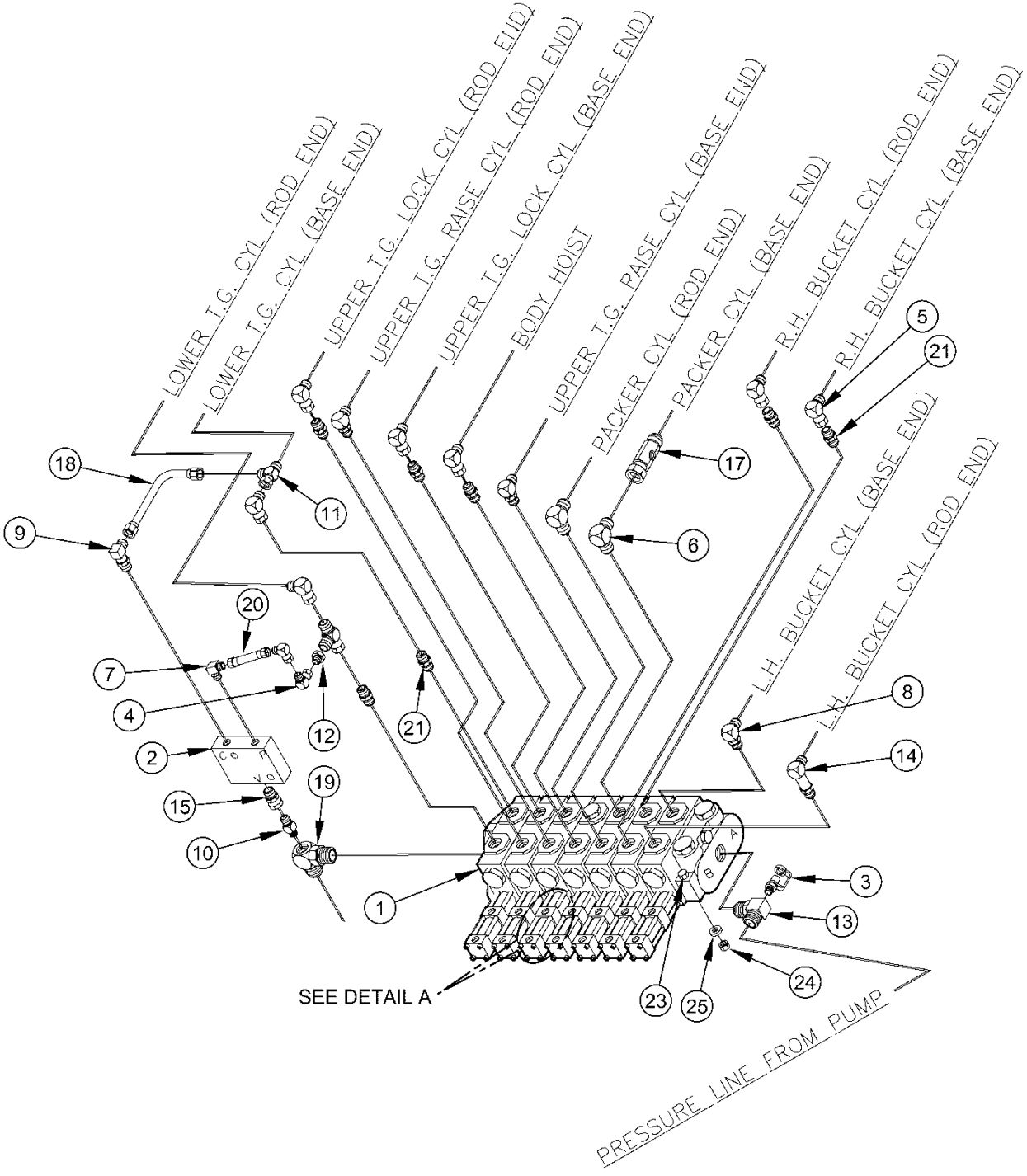
VALVE ASSEMBLIES

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7-SECTION VALVE ASSEMBLY

272-7412



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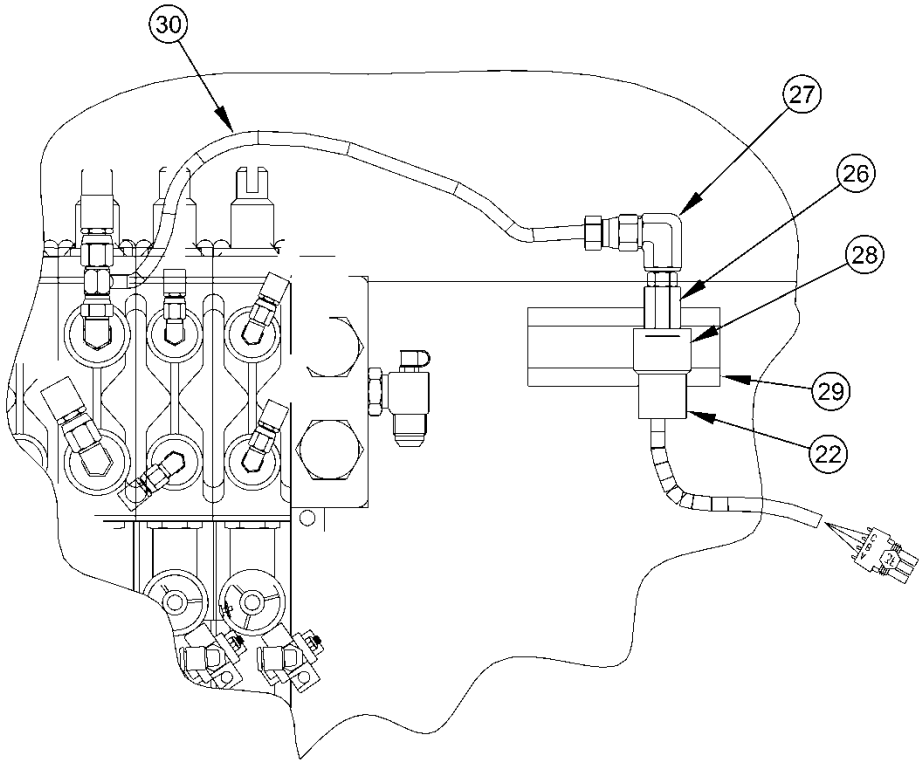
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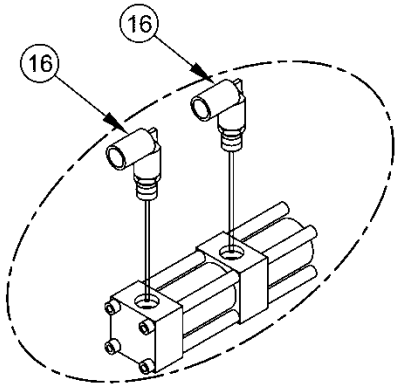
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7-SECTION VALVE ASSEMBLY

272-7412





DETAIL A

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7-SECTION VALVE ASSEMBLY

272-7412

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-7412	ASSEMBLY, Valve, 7-Section	-	REF
1	031-5838	VALVE, Control (See Section 5)	-	1
2	031-2942	VALVE, Check, Pilot	-	1
3	031-5601	DISCONNECT, Quick (See Section 5)	-	1
4	054-2988-003	ELBOW, Female, 90°, Tube to Swivel, 1/4", 37° Flare,	-	2
5	054-2988-006	ELBOW, Male to Female Swivel, 90°, 37° Flare, Swivel Tube 3/4”-16 x 1/2", #8	-	7
6	054-3237-006	ELBOW, Male, Reducing, 90°, Tube 1-1/16”-12 x 3/4" to Str. Thd. 7/8”-14 x 5/8”	-	2
7	054-3237-011	ELBOW, Male, Reducing, 90°, 1/4" x 3/4"	-	1
8	054-3237-013	ELBOW, Male, Reducing, 90°, 1/2" x 5/8" Tube 3/4”-16 x 1/2" to Str. Thd. 7/8”-14 x 5/8”	-	3
9	054-3340-006	ELBOW, O-Ring 1/2" to 1/2" JIC	-	1
10	054-3526-012	CONNECTOR, 1/2" Male JIC x 3/8" Male NPT	-	1
11	054-3624-006	TEE, Run, Female, Swivel, 37° Flare, 1/2"-3/4”-16	-	2
12	054-6547-002	REDUCER, 1/2" to 1/4" JIC	-	1
13	054-7324	ELBOW, 90°, w/Port, 3/4” Male SAE-1” Male JIC, 37° Flare	-	1
14	054-7478	ELBOW, Male, Reducing, 90°, Tube to O-Ring	-	1
15	054-7496-002	CONNECTOR, Swivel, #8 JIC-SAE	-	1
16	054-8470-004	ELBOW, Tube, 1/4”-Pipe, 1/4”	-	14
17	054-8800	FITTING, Pressure Test	-	1
18	054-9250-016	VALVE, Lock, Hydraulic Tube, 1/2"	-	1
19	054-9636	FITTING, Return Line, #12	-	1
20	054-9637-003	TUBE, Tailgate Lock Valve, 1/4"	-	1
21	058-3205-016	CONNECTOR, O-Ring, 5/8” SAE-1/2” JIC	-	7
22	063-0115	SWITCH, Pressure, w/Connector, Packard	-	1
23	FS070840	HHCS, 5/16”-18 x 3”, Gr. 5	-	3
24	FS230800	NUT, Lock, 5/16’’-18, Gr. 5	-	3
25	FS520800	WASHER, Flat, 5/16”, SAE, Plain	-	3
26	031-1900	SNUBBER, Pressure	-	1
27	074-3416-001	ADAPTER, Hose to Union, 90° Swivel, 1/4" x 1/4"	-	1
28	036-1474-010	ASSEMBLY, Clamp, Hydraulic Tube	-	1
29	207-2938-015	CHANNEL, Unistrut, 4”	-	1
30	QC1-BCCC-018	HOSE, 1/4", Pipe Male Swivel to Female, 18"	-	1

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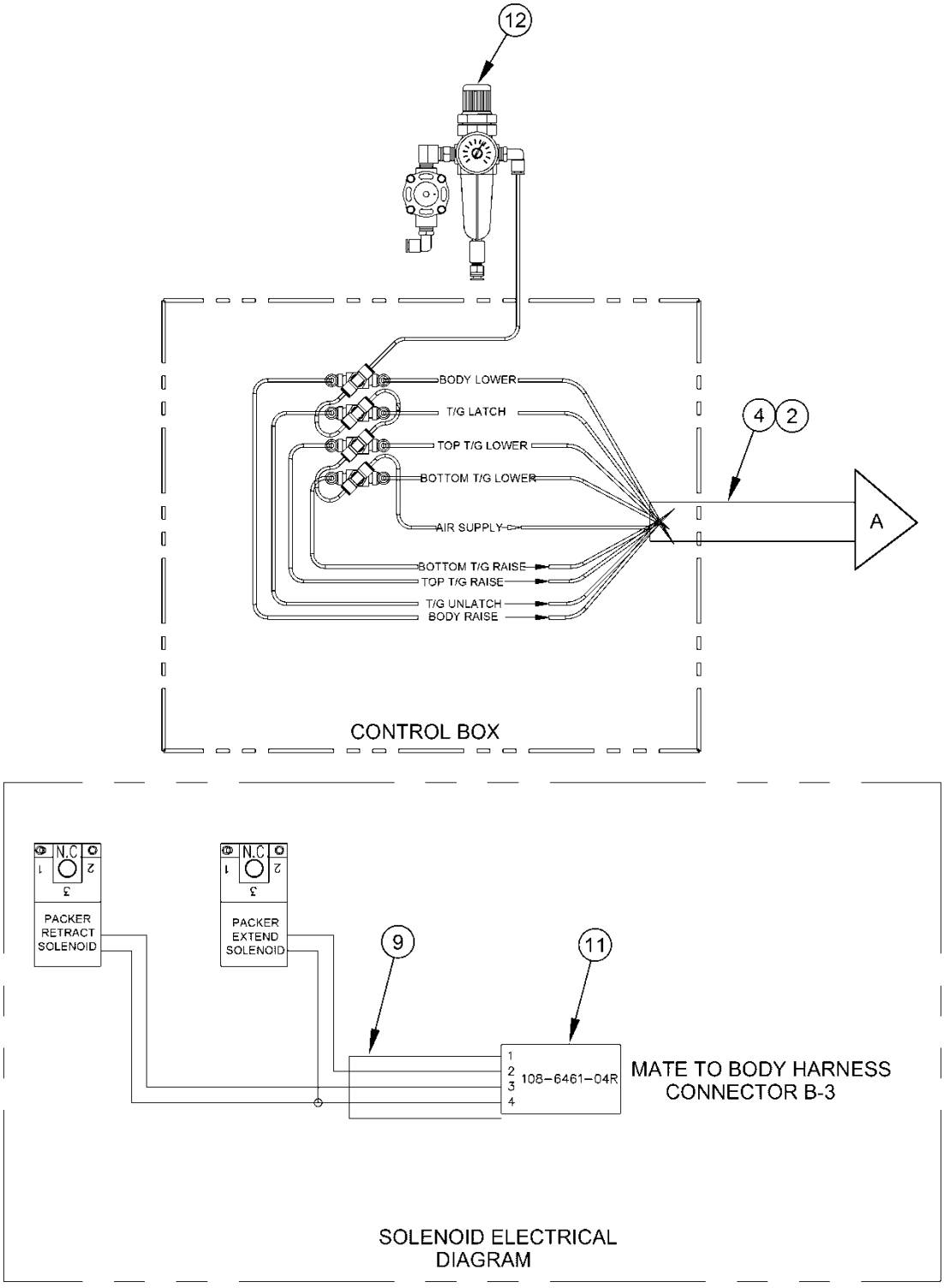
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372-2608



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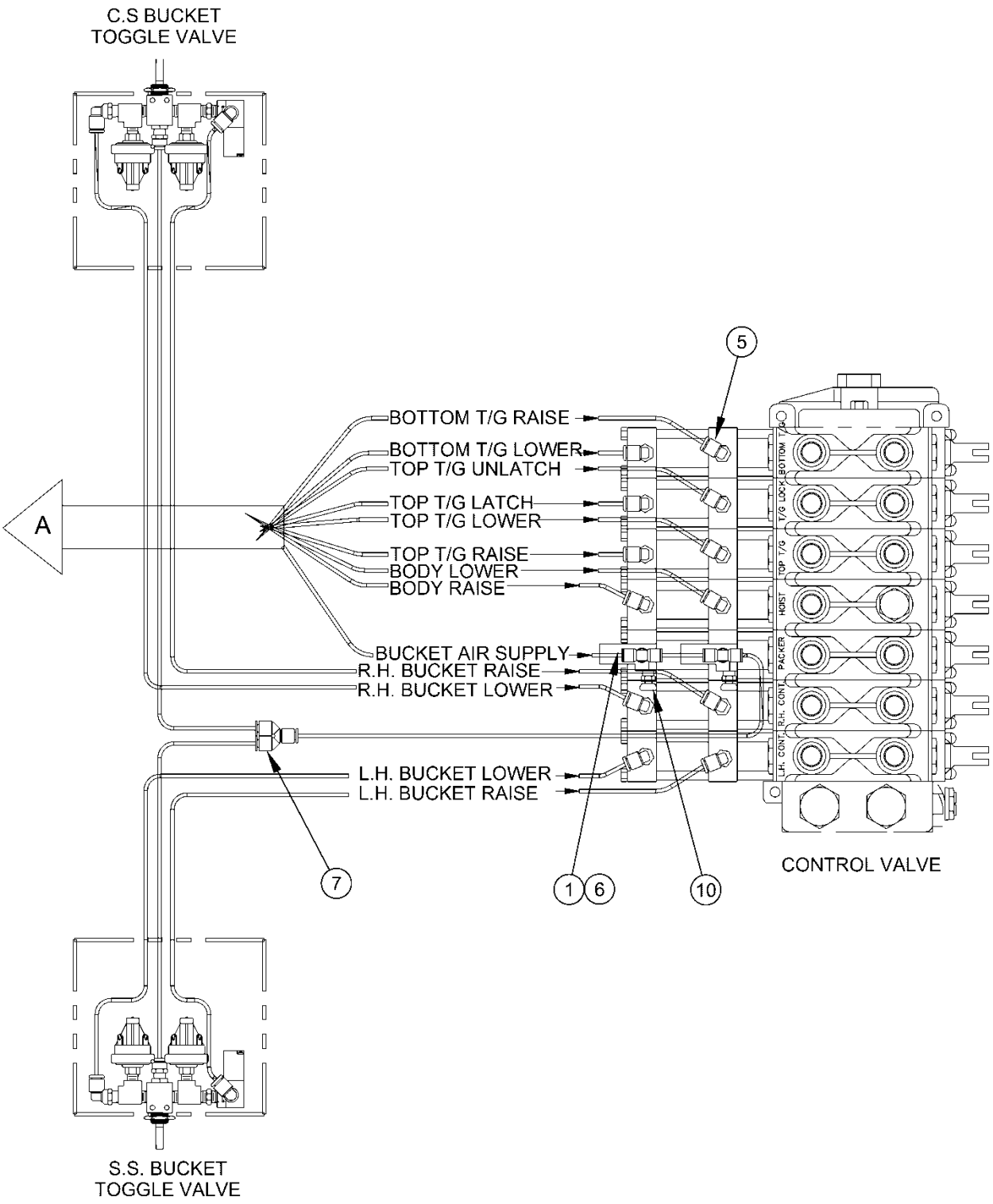
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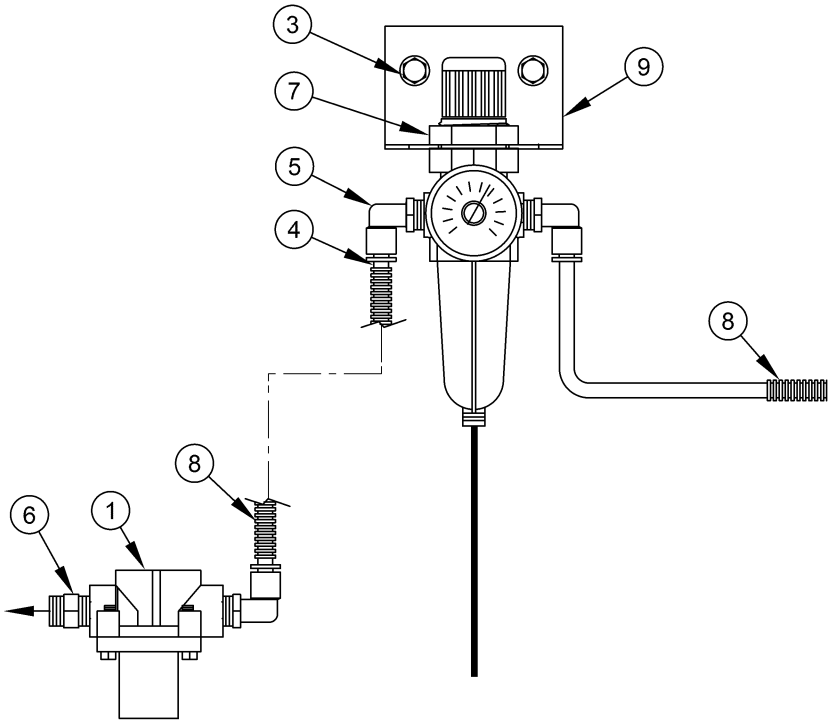
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2608	INSTALLATION, Pneumatic	-	REF
1	031-5724-012	SOLENOID, Air	-	2
2	036-1290	STRAP, Harness, Nylon	-	20
-3	054-5449	TUBING, Air Line, 1/4", Nylon	-	5'
4	054-7819	ASSEMBLY, Air Line	-	25'
5	054-8470-004	ELBOW, Connection, Air Line	-	12
6	054-8471-003	TEE, Tube, Air Line Connection, 1/4”-NPT-1/8”	-	2
7	054-8474-002	CONNECTOR, “Y”, Air Line, 1/4"	-	1
-8	054-8927-003	NIPPLE, Pipe, Brass, 1/4”-1/8”	-	2
9	108-4470	LOOM, Electrical, 3/8”	-	1'
10	108-5354-006	BREATHER	-	2
11	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	1
12	272-7464	KIT, Air Supply, Chassis, Universal (See Pg. 4049)	-	1

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UNIVERSAL CHASSIS AIR SUPPLY KIT

272-7464



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UNIVERSAL CHASSIS AIR SUPPLY KIT

272-7464

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-7464	KIT, Air Supply, Chassis, Universal	-	REF
1	031-1909	VALVE, Protection, Pressure	-	1
-2	036-1115	CLAMP, Strap, Plastic	-	30
3	047-2151-011	SCREW, Tek, 1/4”	-	2
4	054-5449	TUBE, Air Line, 1/4"	-	20’
5	054-8470-004	ELBOW, Tube, 1/4”-Pipe, 1/4”	-	3
6	054-8927-002	NIPPLE, Pipe, Brass, 1/4”	-	1
7	075-0721	REGULATOR, Filter	-	1
8	108-4498	LOOM, Electrical	-	20’
9	211-9967	BRACKET, Filter-Regulator	-	1

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SECTION 5
HYDRAULIC COMPONENTS

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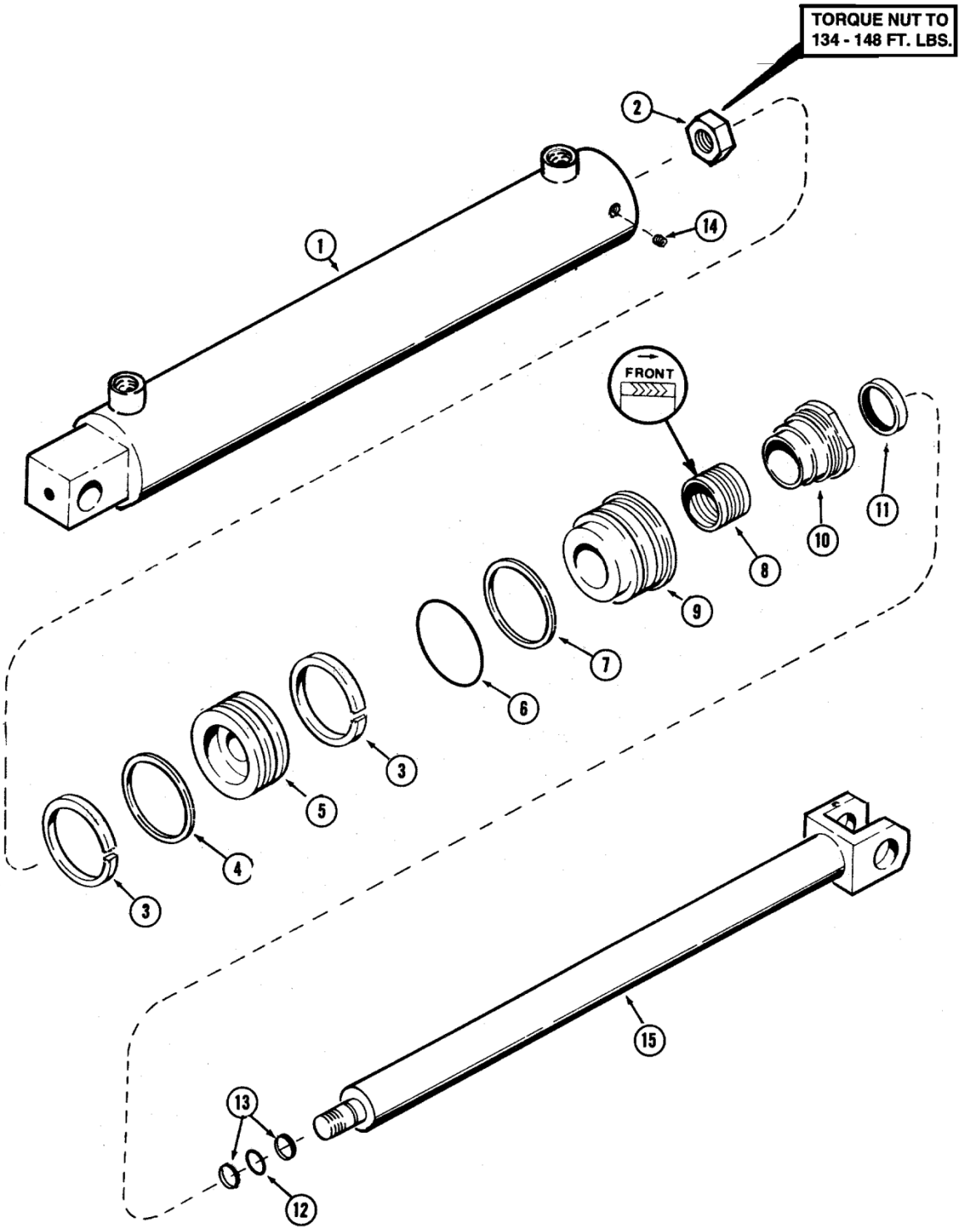
CYLINDERS

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CONTAINER MECHANISM CYLINDER

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CONTAINER MECHANISM CYLINDER

001-4283

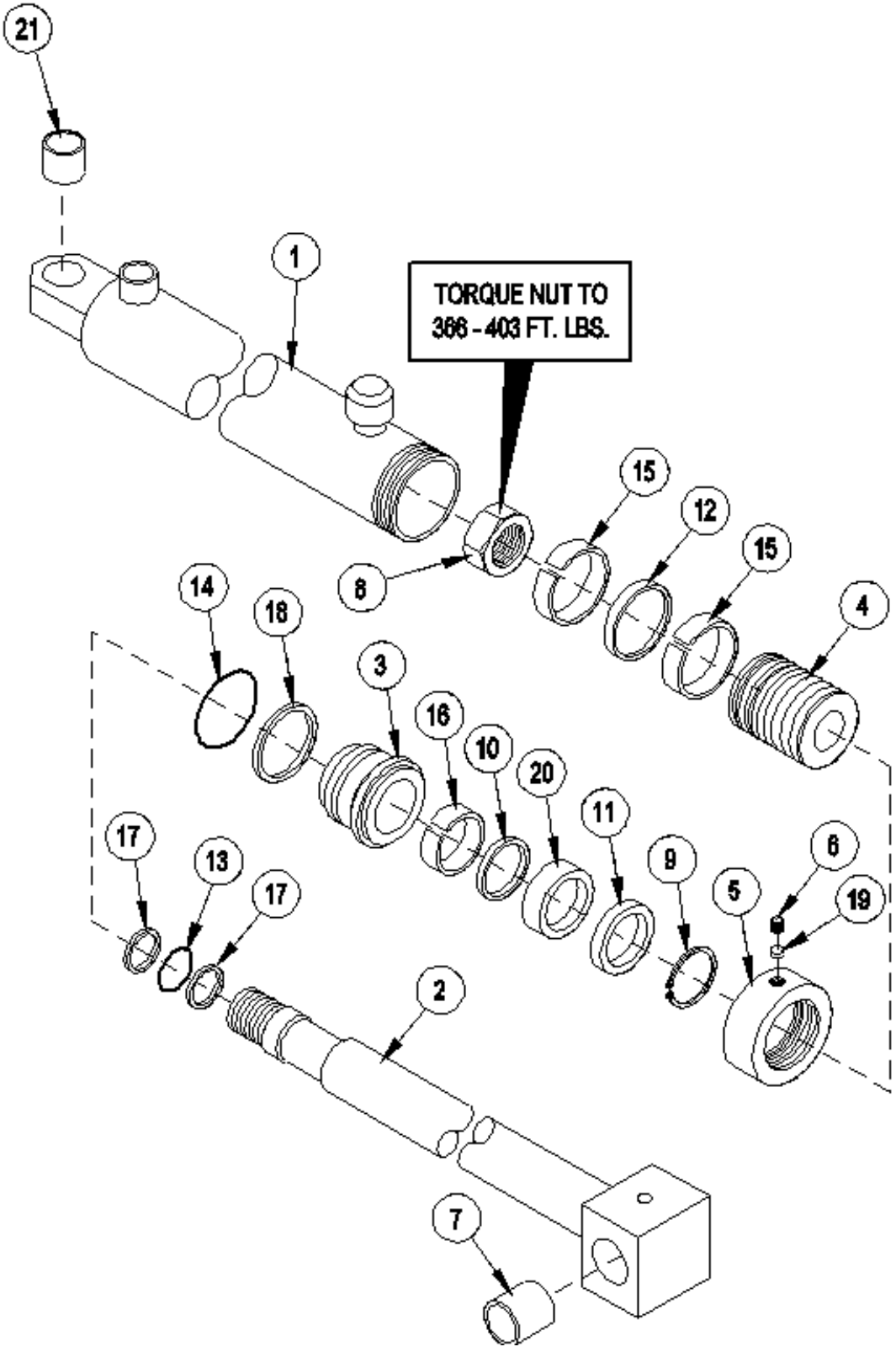
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-4283	CYLINDER, Container, Mech.	-	REF
1	085-0387	BARREL	-	1
2	FS271700	NUT, Hex, 7/8”-14, Plain (Torque to 134-148 ft./lbs.)	-	1
-	272-0966	KIT, Seal (Consists of items 3, 4, 6-8 and 11-13)	-	A/R
3	NSS	RING, Wear	-	2
4	NSS	RING, Solid Seal	-	1
5	024-0712	PISTON	-	1
6	NSS	O-RING	-	1
7	NSS	RING, Back-Up	-	1
8	NSS	V-PACKING (Set)	-	1
9	023-0686	GLAND, Packing	-	1
10	023-0672	NUT, Packing	-	1
11	NSS	WIPER	-	1
12	NSS	O-RING	-	1
13	NSS	RING, Back-Up	-	2
14	FS440707	SET SCREW, Socket Hd., 1/4"-20 x 1/4"	-	1
15	027-4199	ASSEMBLY, Rod	-	1

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PACKER CYLINDER

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PACKER CYLINDER

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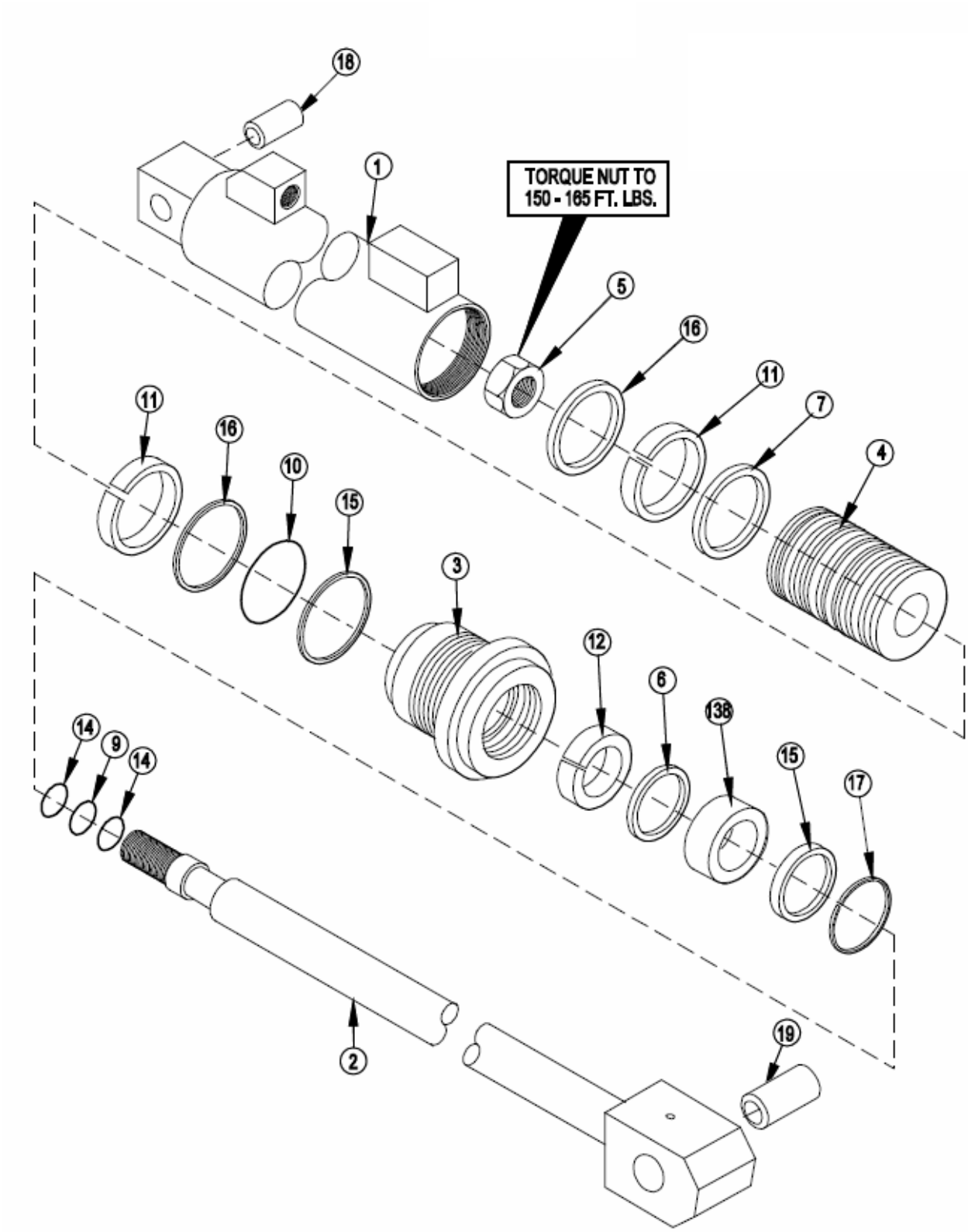
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-6069	CYLINDER, Packer	-	REF
1	001-6069-004	ASSEMBLY, Barrel	-	1
2	001-6069-003	ASSEMBLY, Rod	-	1
3	001-6069-005	GLAND	-	1
4	001-6069-002	PISTON	-	1
5	023-0663	GLAND, Retainer	-	1
6	FS440909	SET SCREW, 3/8”-16	-	1
7	003-4016	BUSHING	-	1
8	001-5082-010	NUT, Lock	-	1
9	001-5098-008	RING, Snap	-	1
-	001-6069-010	KIT, Seal (Consists of Items 10-18 and 20)	-	A/R
10	NSS	RING, Buffer	-	1
11	NSS	WIPER, Canned	-	1
12	NSS	SEAL, Piston	-	1
13	NSS	O-RING	-	1
14	NSS	O-RING	-	1
15	NSS	RING, Wear	-	2
16	NSS	RING, Wear	-	1
17	NSS	RING, Back-Up	-	2
18	NSS	RING, Back-Up	-	1
19	047-1520	SLUG, Nylon	-	1
20	NSS	SEAL, Rod	-	1
21	003-3585	BUSHING	-	1

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LIFT ARM CYLINDER ASSEMBLY

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LIFT ARM CYLINDER ASSEMBLY

001-6142

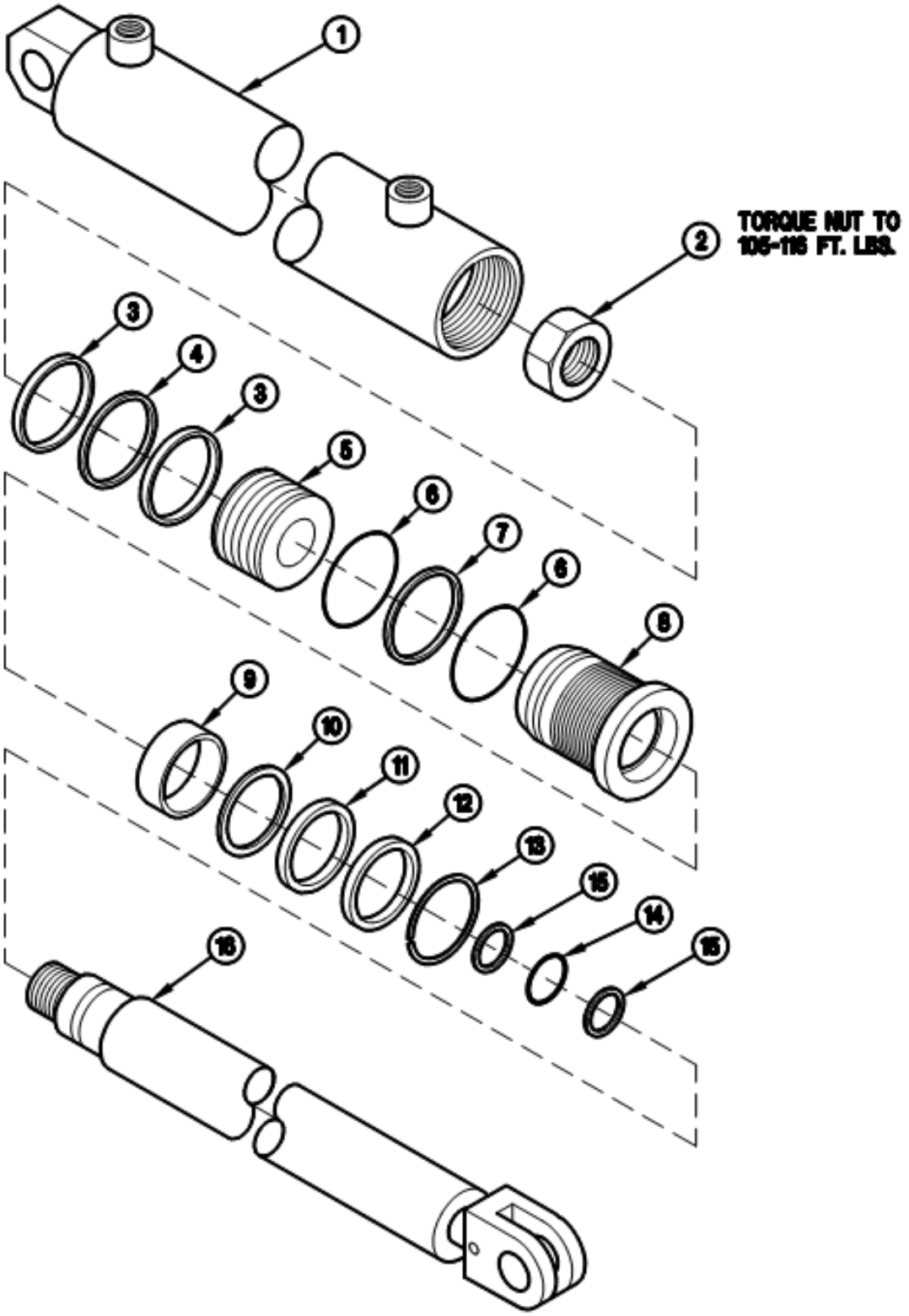
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-6142	ASSEMBLY, Cylinder, Lift Arm	-	REF
1	001-6142-001	ASSEMBLY, Barrel	-	1
2	001-6070-002	ROD	-	1
3	001-6070-003	GLAND	-	1
4	001-6142-004	PISTON	-	1
5	001-6070-005	NUT, Lock	-	1
-	001-6070-010	KIT, SEAL (Consists of Items 6-16)	-	A/R
6	NSS	RING, Buffer	-	1
7	NSS	SEAL, Capped T	-	1
8	NSS	WIPER, Canned	-	1
9	NSS	O-RING	-	1
10	NSS	O-RING	-	1
11	NSS	RING, Wear	-	2
12	NSS	RING, Wear	-	1
13	NSS	SEAL, Rod	-	1
14	NSS	RING, Back-Up	-	2
15	NSS	RING, Back-Up	-	1
16	NSS	RING, Piston	-	2
17	001-6070-009	RING, Retaining	-	1
18	003-4015	BUSHING	-	1
19	003-3585	BUSHING	-	1

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TAILGATE RAISE CYLINDER

001-6400



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TAILGATE RAISE CYLINDER

001-6400

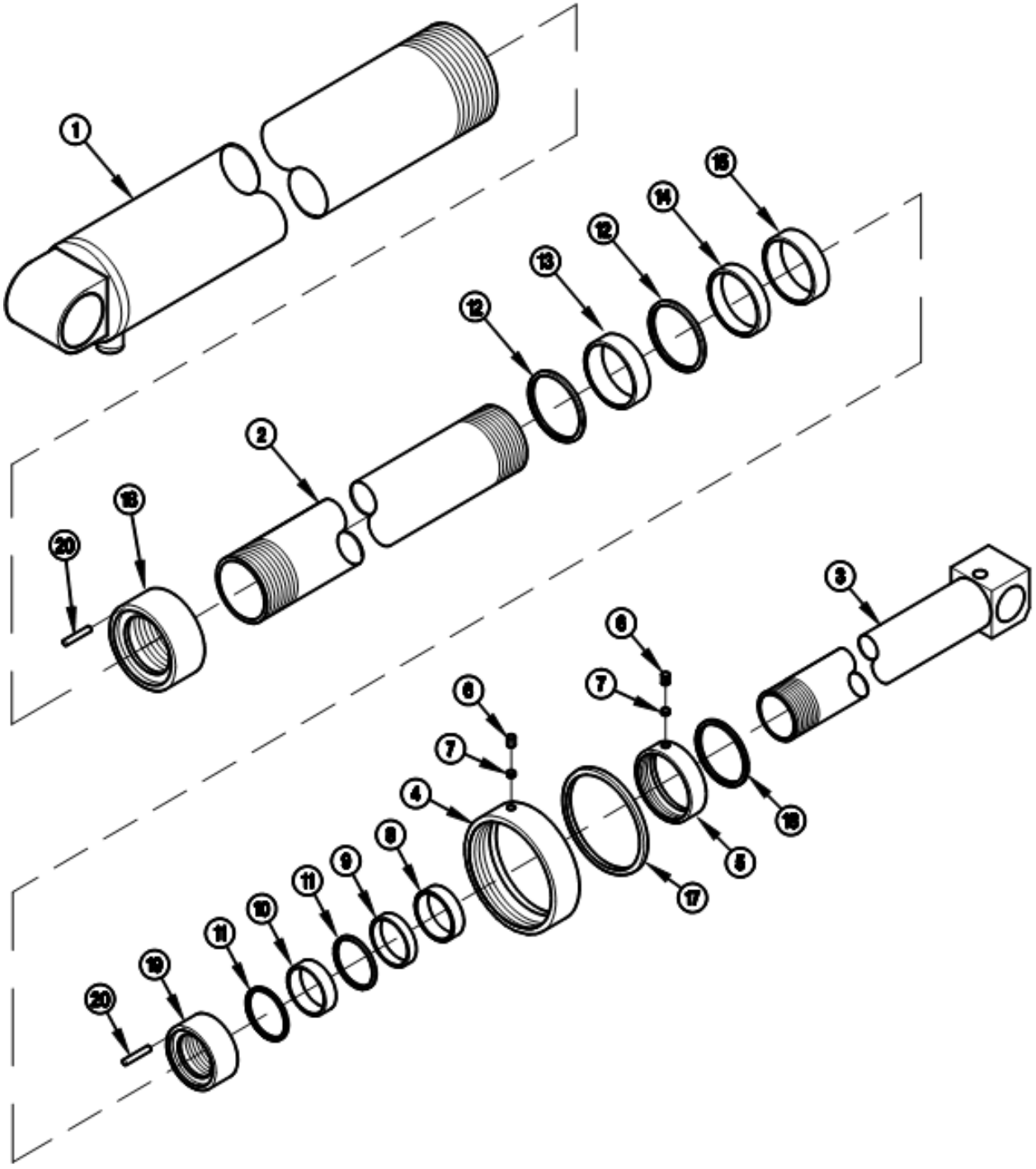
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-6400	CYLINDER, Tailgate Raise	-	REF
1	NSS	ASSEMBLY, Barrel	-	1
2	FS313088	NUT, Lock	-	1
-	001-6400-004	KIT, Seal (Consists of Items 3-6 and 9-15)	-	A/R
3	NSS	RING, Wear	-	2
4	NSS	SEAL, Piston	-	1
5	NSS	PISTON	-	1
6	NSS	O-RING	-	2
7	026-4622-018	RING, Back-Up	-	1
8	001-6400-006	GLAND	-	1
9	NSS	RING, Wear	-	1
10	NSS	SEAL, Buffer	-	1
11	NSS	SEAL, Rod	-	1
12	NSS	WIPER, Canned	-	1
13	NSS	RING, Retaining	-	1
14	NSS	O-RING	-	1
15	NSS	RING, Back-Up	-	2
16	001-6400-002	ASSEMBLY, Rod	-	1

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HOIST CYLINDER ASSEMBLY

001-6425



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HOIST CYLINDER ASSEMBLY

001-6425

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-6425	ASSEMBLY, Cylinder, Hoist	-	REF
1	001-6425-001	ASSEMBLY, Barrel	-	1
2	001-6425-002	TUBE, 4”	-	1
3	001-6425-003	ASSEMBLY, Plunger, 3-1/4”	-	1
4	023-0598	GLAND, Retainer	-	1
5	023-0591	GLAND, Retainer	-	1
6	FS440909	SET SCREW, 3/8”-16	-	2
7	047-1520	SLUG	-	2
-	272-4893	KIT, Seal (Consists of Items 8-17)	-	A/R
8	NSS	RING, Guide, Upper	-	1
9	NSS	SEAL, Rod, U-Cup	-	1
10	NSS	RING, Guide, Lower	-	1
11	NSS	RING, Retaining	-	2
12	NSS	RING, Retaining	-	2
13	NSS	RING, Guide, Lower	-	1
14	NSS	SEAL, Rod, U-Cup	-	1
15	NSS	RING, Guide, Upper	-	1
16	NSS	WIPER	-	1
17	NSS	WIPER	-	1
18	026-2152	PISTON	-	1
19	026-2696	PISTON	-	1
20	048-5049	PIN, Grooved	-	2

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HOIST CYLINDER

001-6953

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HOIST CYLINDER

001-6953

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-6953	CYLINDER, Hoist	-	REF

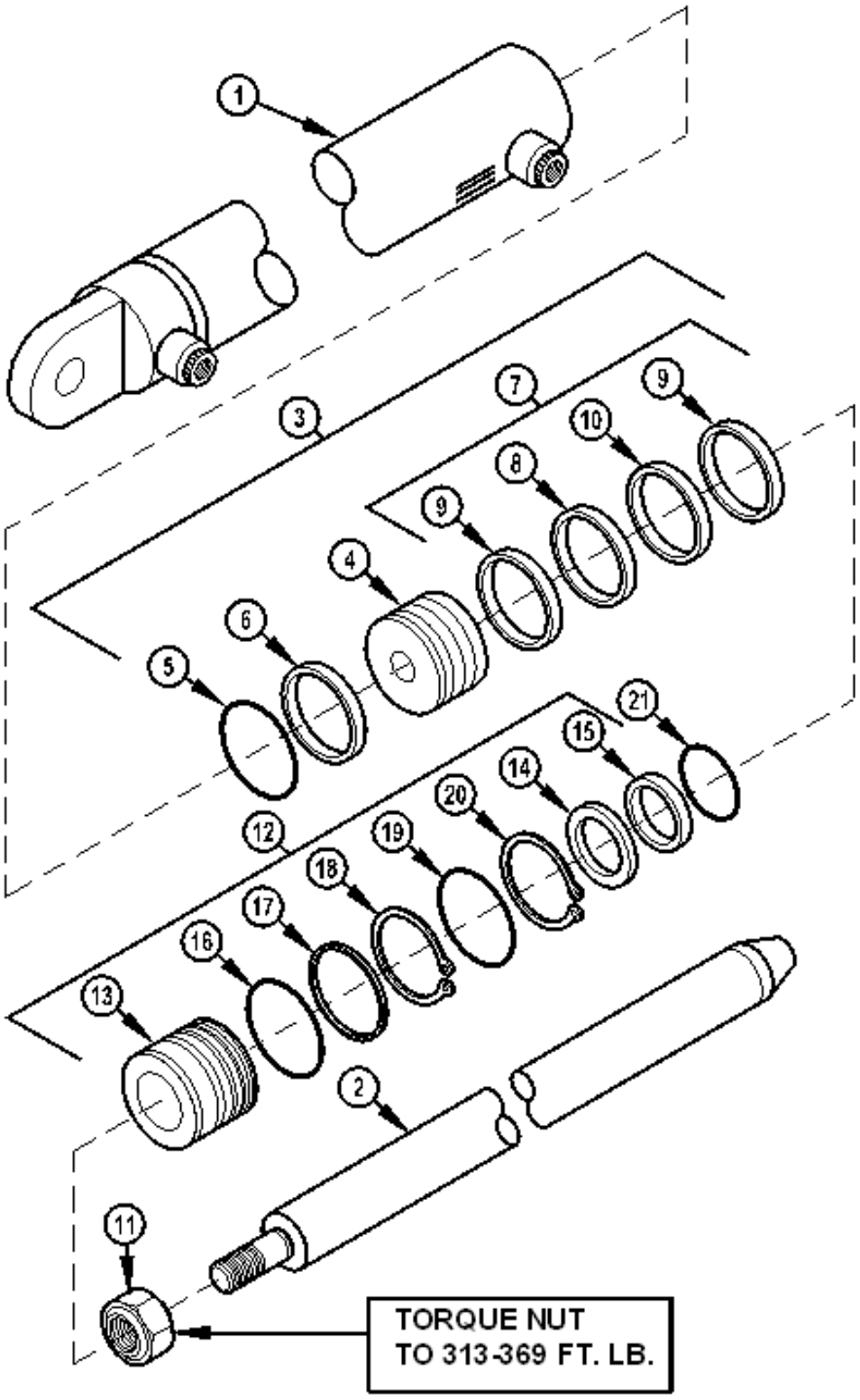
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TAILGATE LOCK CYLINDER

001-6720



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TAILGATE LOCK CYLINDER

001-6720

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	001-6720	CYLINDER, Tailgate Lock	-	REF
1	NSS	ASSEMBLY, Barrel	-	1
2	001-6720-001	ROD	-	1
3	001-6722-006	PISTON (Consists of Items 4, 5, 6 and 7)	-	1
4	NSS	PISTON	-	1
5	NSS	O-RING	-	1
6	NSS	RING, Wear	-	1
7	NSS	SEAL (Consists of Items 8, 9 and 10)	-	1
8	NSS	SEAL	-	1
9	NSS	SEAL	-	1
10	NSS	SEAL	-	1
11	001-6722-002	NUT	-	1
12	001-6720-002	GUIDE, Rod (Consists of Items 13-20)	-	1
13	NSS	GUIDE, Rod	-	1
14	NSS	SEAL	-	2
15	NSS	SEAL	-	1
16	NSS	O-RING	-	1
17	NSS	RING	-	1
18	NSS	RING, Snap	-	1
19	NSS	O-RING	-	1
20	NSS	RING, Snap	-	1
21	001-6720-003	O-RING	-	1

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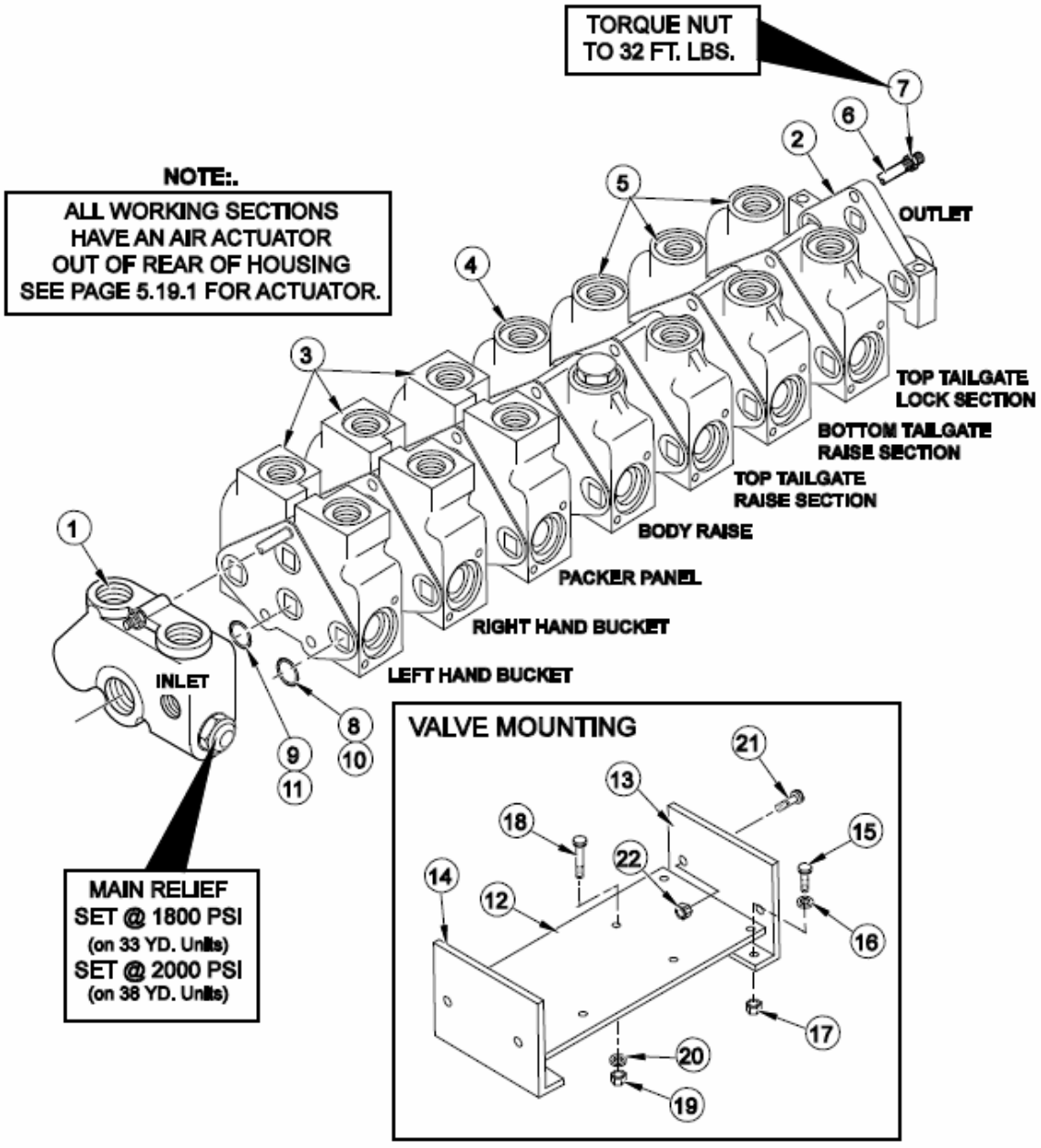
VALVES

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CONTROL VALVE

031-5838



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CONTROL VALVE

031-5838

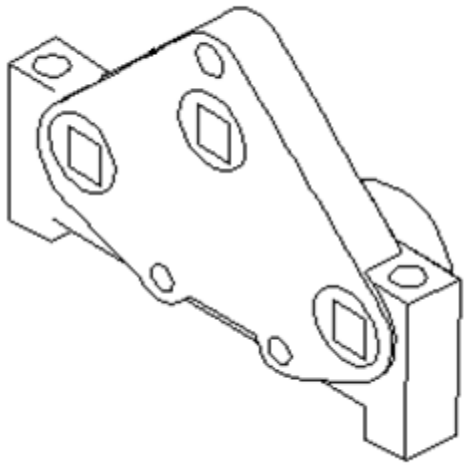
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-5838	VALVE, Control (Consists of Items 1-11)	-	REF
1	031-3285-001	SECTION, Inlet (See Pg. 5023)	-	1
2	031-5658-004	SECTION, Outlet (See Pg. 5023)	-	1
3	031-5658-001	SECTION, Valve, Working for Container and Packer Functions (See Pg. 5025)	-	3
4	031-5658-002	SECTION, Valve, Working for Body Raise Function (See Pg. 5027)	-	1
5	031-5658-003	SECTION, Valve, Working (See Pg. 5029)	-	1
6	031-5838-001	KIT, Stud (Includes Item 7)	-	1
7	031-3285-052	NUT, Hex., 3/8”-16	-	3
-	031-3285-048	KIT, Seal (Consists of Items 8-11) (Old and New Style) 2 Each	-	A/R
8	031-3285-046	SEAL, O-Ring (Large) Old Style, 0.926 ID (2/Section)	-	2
9	031-3285-047	SEAL, O-Ring (Small) Old Style, 0.801 ID (2/Section)	-	2
10	031-3285-071	SEAL, O-Ring (Large) New Style, 0.924 ID (2/Section)	-	2
11	031-3285-070	SEAL, O-Ring (Small) New Style, 0.799 ID (2/Section)	-	2
12	211-4503	BRACKET, Valve, Mtg.	-	1
13	211-4502	BRACKET, (Right Hand)	-	1
14	211-4501	BRACKET, (Left Hand)	-	1
15	FSP071124	HHCS, 1/2"-13 x 1-1/2”, Gr. 5, Plated	-	4
16	FSP511100	WASHER, Flat, 1/2" Std., Plated	-	8
17	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	4
18	FSP070840	HHCS, 5/16”-18 x 3’’, Gr. 5, Plated	-	3
19	FSP320800	NUT, 5/16”-18, Gr. 8, Plated	-	3
20	FSP520800	WASHER, Flat, 5/16”, SAE, Plain	-	3
21	FSP071332	HHCS, 5/8”-11 x 2-1/4”, Gr. 5, Plated	-	4
22	FSP231301	NUT, Lock, 5/8”-11 x 1/16”, Gr.5, Plated	-	4

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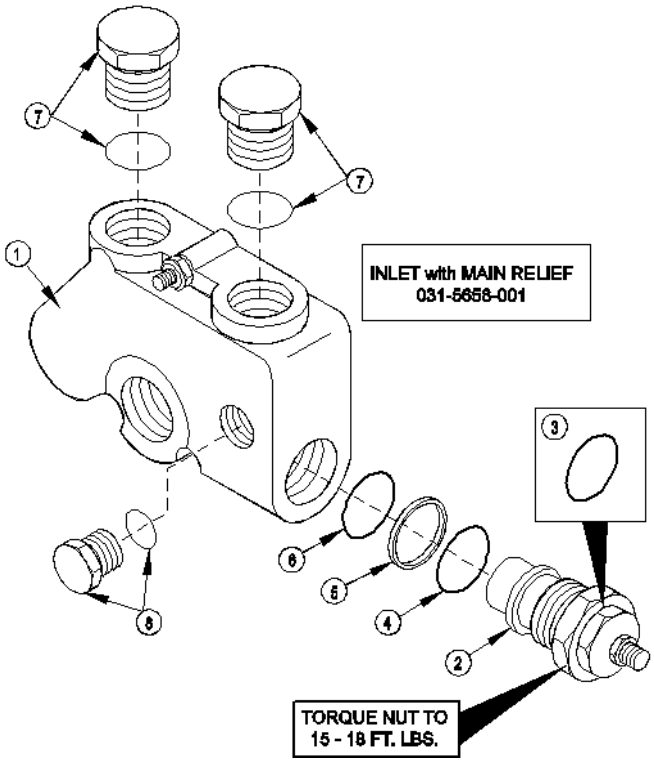
OUTLET SECTION

031-5658-004



INLET SECTION

031-3285-001



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OUTLET SECTION

031-5658-004

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-5658-004	SECTION, Outlet	-	REF

INLET SECTION

031-3285-001

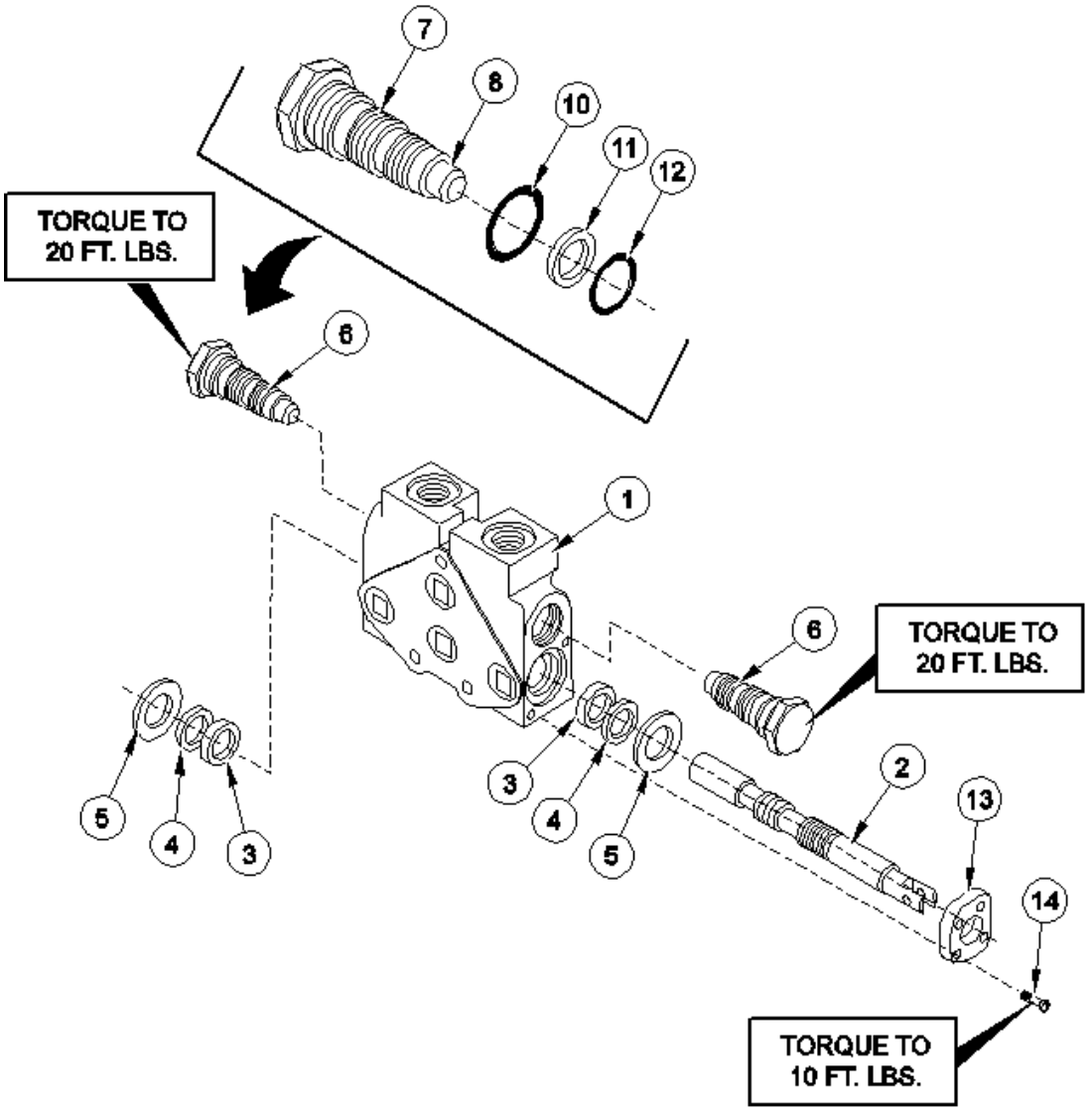
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-3285-001	SECTION, Inlet (Consists of Items 1-8)	-	REF
1	031-3285-007	COVER	-	1
2	031-2979	RELIEF, Main (Set @ 2500 PSI)	-	1
-	207-6103	KIT, Seal (Consists of Items 3-6)	-	A/R
3	031-3285-055	SEAL, O-Ring	-	1
4	031-3285-056	SEAL, O-Ring	-	1
5	031-3285-057	RING, Back-Up	-	1
6	011-5093	SEAL, O-Ring	-	1
7	031-3285-009	PLUG	-	1
8	031-3285-010	PLUG	-	2

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WORKING VALVE SECTION FOR CONTAINER AND PACKER FUNCTIONS

001-5658-001



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WORKING VALVE SECTION FOR CONTAINER AND PACKER FUNCTIONS

001-5658-001

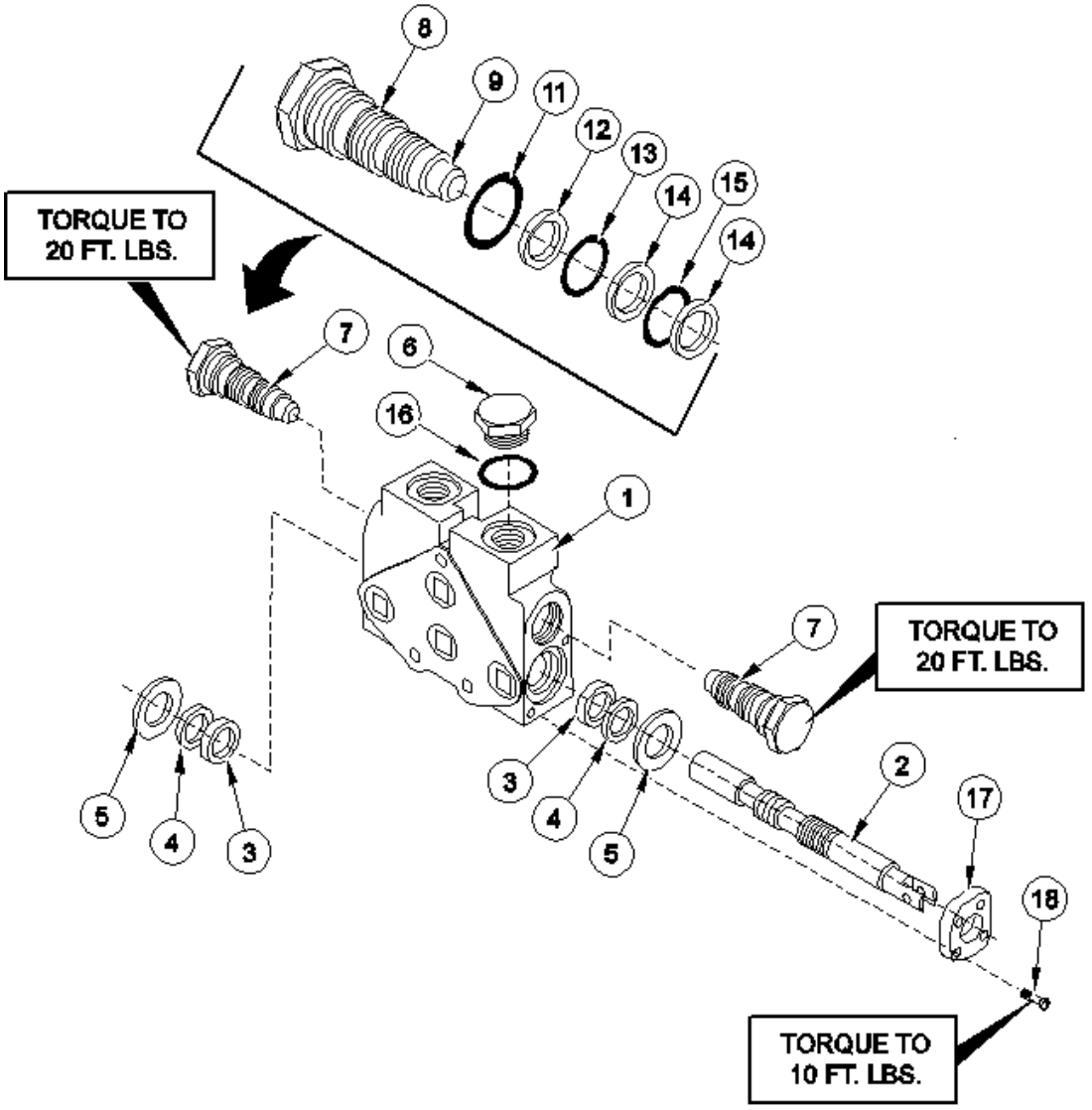
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-5658-001	SECTION, Valve, Working for Container and Packer Function	-	REF
1	NSS	HOUSING	-	1
2	NSS	SPOOL (Must be Ordered as a Matched Set w/ Housing)	-	1
-	031-3285-041	KIT, Seal (Consists of Items 3 and 4)	-	1
3	NSS	SEAL, Spool	-	2
4	NSS	WASHER, Back-Up	-	2
5	207-6035	WASHER, Plate, Retainer	-	2
6	031-5658-007	PLUG, Check, Load (Consists of Items 7-12)	-	2
7	031-5658-008	PLUG	-	1
8	031-5658-009	POPPET	-	1
9	031-3285-025	SPRING (Inside Plug)	-	1
-	031-5658-013	KIT, Seal (Consists of Items 10-12)	-	1
10	NSS	SEAL, O-Ring	-	1
11	NSS	WASHER, Back-Up (Outer)	-	1
12	NSS	SEAL, O-Ring	-	1
13	031-5658-011	PLATE	-	1
14	031-3286-079	CAPSCREW, 1/4" x 1/2"	-	2

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WORKING VALVE SECTION FOR BODY RAISE FUNCTION

001-5658-002



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WORKING VALVE SECTION FOR BODY RAISE FUNCTION

001-5658-002

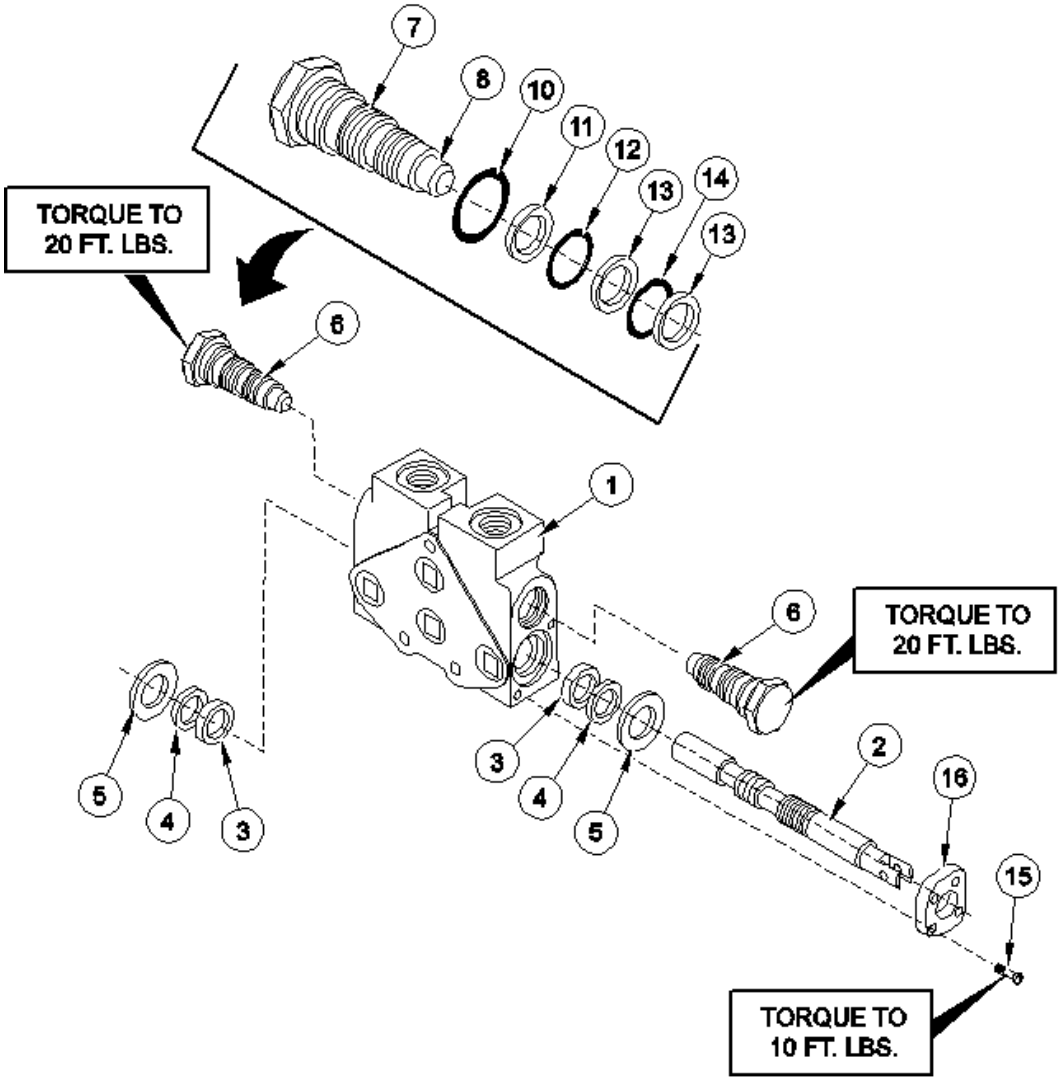
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-5658-002	SECTION, Valve, Working for Body Raise Function	-	REF
1	NSS	HOUSING	-	1
2	NSS	SPOOL (Must be Ordered as a Matched Set w/ Housing)	-	1
-	031-3285-041	KIT, Seal (Consists of Items 3 & 4)	-	1
3	031-3285-016	SEAL, Spool	-	2
4	207-6034	WASHER, Back-Up	-	2
5	207-6035	WASHER, Plate, Retainer	-	2
6	031-3285-044	PLUG, (SAE-10)	-	1
7	031-3285-014	PLUG, Check, Load (Consists of Items 8-15)	-	2
8	031-3285-023	PLUG	-	1
9	031-3285-024	POPPET	-	1
10	031-3285-025	SPRING (Inside Plug)	-	1
-	031-3285-026	KIT, Seal (Consists of Items 11-16)	-	1
11	026-2292-006	SEAL, O-Ring	-	1
12	207-5521	WASHER, Back-Up (Outer)	-	1
13	031-3285-029	SEAL, O-Ring	-	1
14	031-3285-030	WASHER, Back-Up (Outer)	-	2
15	031-3285-031	SEAL, O-Ring	-	1
16	026-2292-006	SEAL, O-Ring	-	1
17	031-5658-011	PLATE	-	1
18	031-3286-079	CAPSCREW, 1/4" x 1/2"	-	2

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WORKING VALVE SECTION FOR TAILGATE RAISE FUNCTION

001-5658-003



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WORKING VALVE SECTION FOR TAILGATE RAISE FUNCTION

001-5658-003

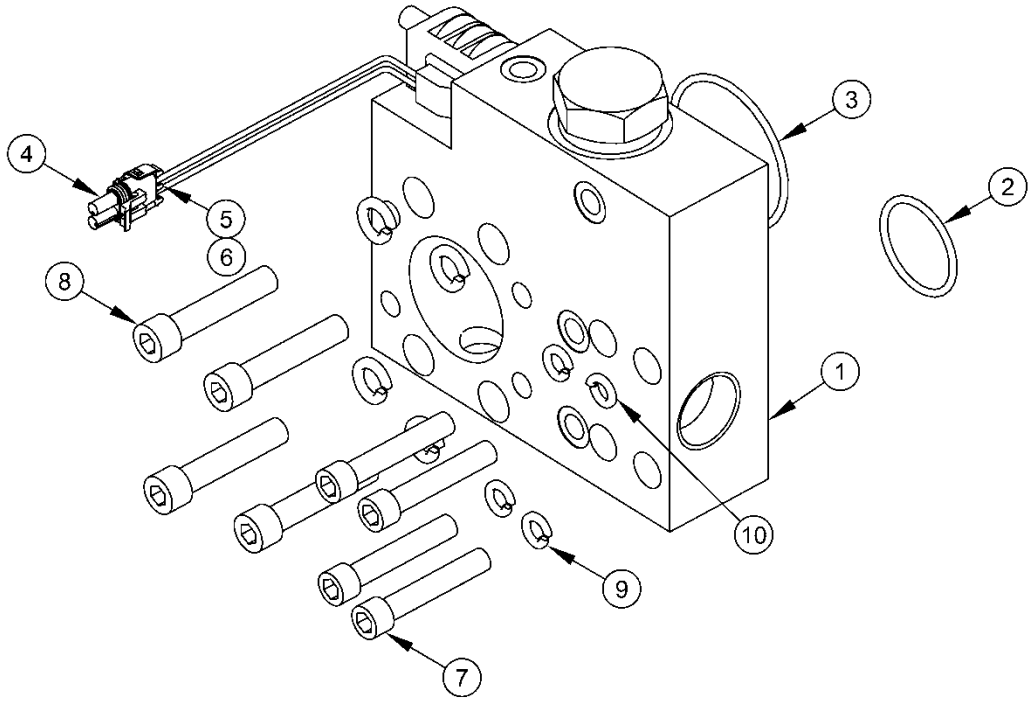
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-5658-002	SECTION, Valve, Working for Tailgate Raise Function	-	REF
1	NSS	HOUSING	-	1
2	NSS	SPOOL (Must be Ordered as a Matched Set w/ Housing)	-	1
-	031-3285-041	KIT, Seal (Consists of Items 3 and 4)	-	1
3	031-3285-016	SEAL, Spool	-	2
4	207-6034	WASHER, Back-Up	-	2
5	207-6035	WASHER, Plate, Retainer	-	2
6	031-3285-014	PLUG, Check, Load (Consists of Items 7-14)	-	2
7	031-3285-023	PLUG	-	1
8	031-3285-024	POPPET	-	1
9	031-3285-025	SPRING (Inside Plug)	-	1
-	031-3285-026	KIT, Seal (Consists of Items 10-14)	-	1
10	026-2292-006	SEAL, O-Ring	-	1
11	207-5521	WASHER, Back-Up (Outer)	-	1
12	031-3285-029	SEAL, O-Ring	-	1
13	031-3285-030	WASHER, Back-Up (Outer)	-	2
14	031-3285-031	SEAL, O-Ring	-	1
15	031-3286-079	CAPSCREW, 1/4" x 1/2"	-	1
16	031-5658-011	PLATE	-	1

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PUMP SHUT OFF VALVE

031-6427-002



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PUMP SHUT OFF VALVE

031-6427-002

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-6427-002	VALVE, Shut Off, Pump	-	REF
1	031-6427-200	ASSEMBLY, Valve, Block	-	1
2	054-8736-013	FLANGE, 4-Bolt SAE, 2”	-	1
3	054-9888-003	O-Ring, SAE	-	1
4	108-4827-004	CONNECTOR, Female, 2 Way, Packard	-	1
5	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	2
6	108-4827-132	SEAL, Cable, 16-14 AWG	-	2
7	FSP131034	CAPSCREW, Socket Hd., 7/16”-14 x 2-1/2”	-	4
8	FSP131134	CAPSCREW, Socket Hd., 1/2”-13 x 2-1/2”	-	4
9	FSP541100	WASHER, Lock, 7/16”, Plain	-	4
10	FSP551000	WASHER, Lock, 1/2”, Plain	-	4

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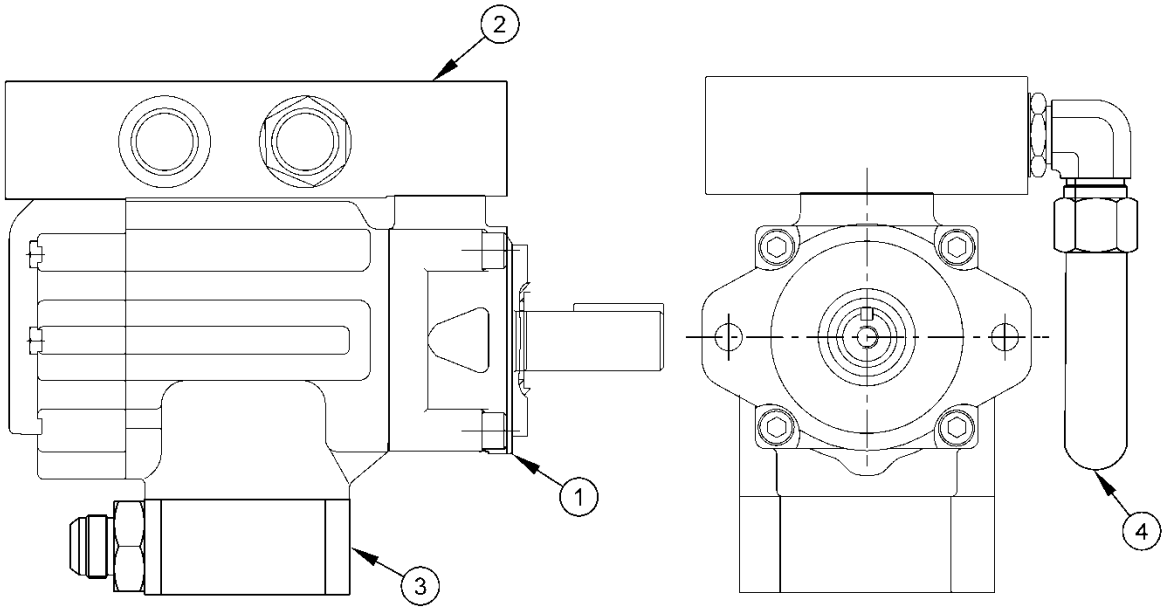
PUMPS

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FRONT MOUNT PUMP ASSEMBLIES

219-2291, 219-2292



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FRONT MOUNT PUMP ASSEMBLIES

219-2291, 219-2292

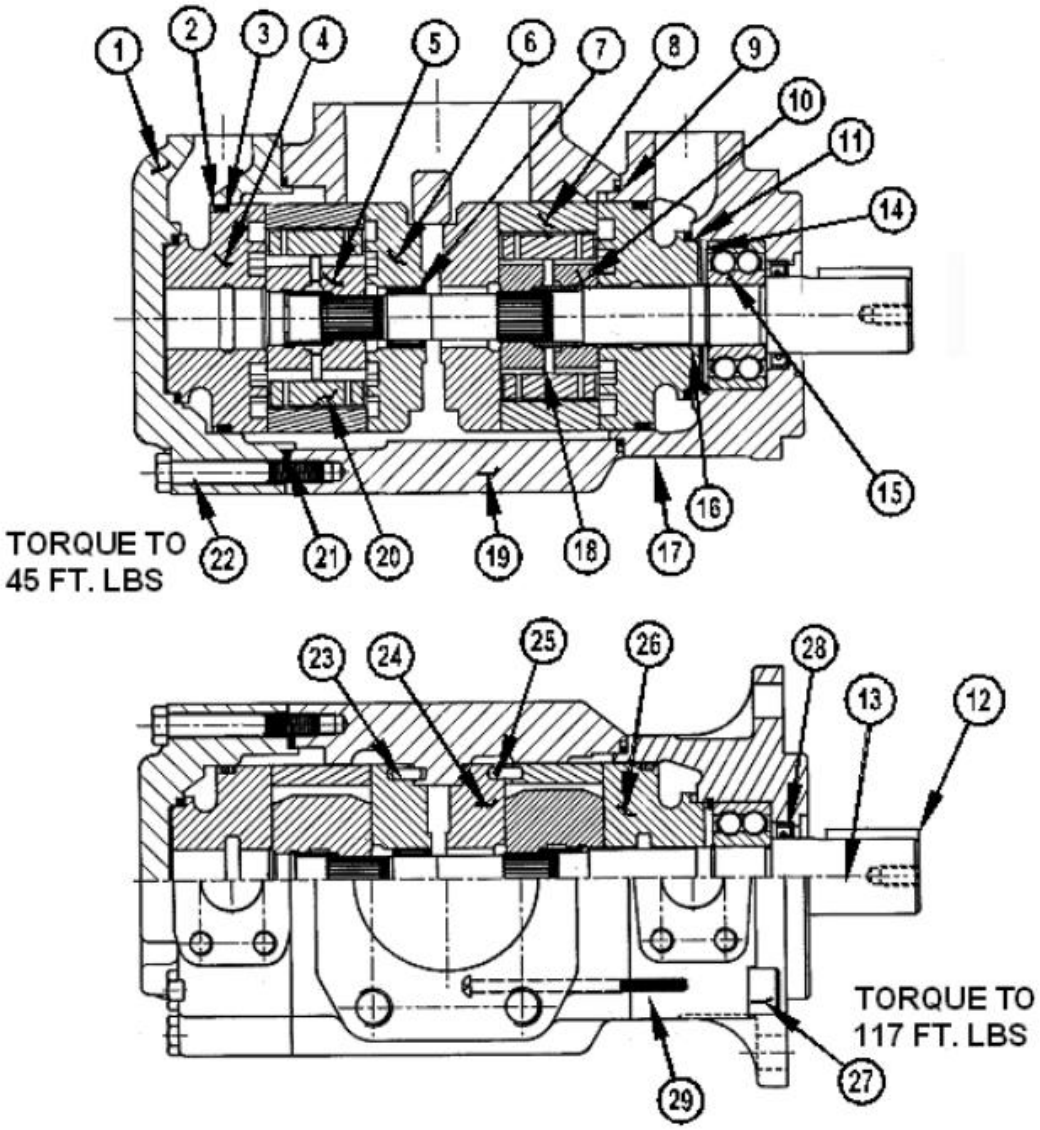
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	219-2291	ASSEMBLY, Pump, Front Mount	A	REF
-	219-2292	ASSEMBLY, Pump, PTO Mount, Square	B	REF
1	219-2076-001	PUMP, Tandem Vane, Front Mount (See Pg. 5037)	A	1
-1a	219-2290	PUMP, Denison (See Pg. 5039)	B	1
2	031-6375	BLOCK, Combiner, Flow, Denison	-	1
3	031-6376	BLOCK, Inlet, Qasis	-	1
4	219-2288-001	ASSEMBLY, Tube, Bypass	-	1

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FRONT MOUNT TANDEM VANE PUMP

219-2076-001



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FRONT MOUNT TANDEM VANE PUMP

219-2076-001

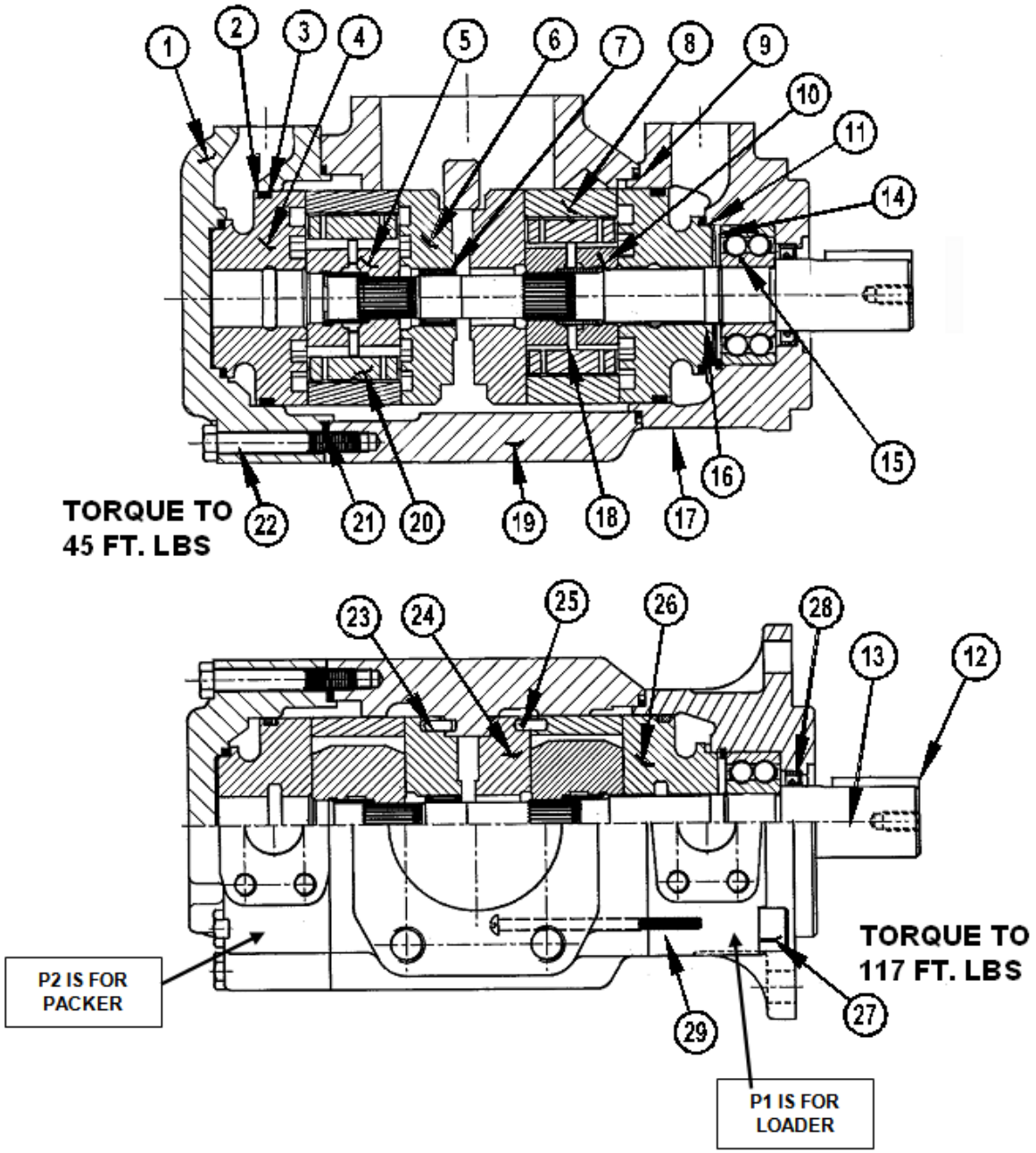
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	219-2076-001	PUMP, Tandem Vane, Front Mount	-	REF
1	219-2076-025	CAP, End	-	1
2	219-2076-026	SEAL, Section, Square	-	2
3	219-2076-027	RING, Back-Up	-	2
4	219-2076-028	PLATE, Pressure Port	-	1
5	219-2076-029	ASSEMBLY, Rotor Insert	-	1
6	219-2076-030	PLATE, Rear Port	-	1
7	219-2076-031	BEARING, Needle	-	1
8	219-2076-032	RING, Cam	-	2
9	219-2076-033	O-RING	-	1
10	219-2076-034	ASSEMBLY, Rotor Insert	-	1
11	219-2076-035	SEAL, Section, Square	-	2
12	219-2076-036	KEY	-	1
13	219-2076-037	SHAFT (Keyed)	-	1
14	219-2076-038	RING, Retaining	-	1
15	219-2076-039	BEARING, Ball	-	1
16	219-2076-040	RING, Section, Round	-	1
17	219-2076-041	CAP, Mounting	-	1
18	219-2076-042	PIN, Holdout, Vane	-	20
19	219-2076-043	HOUSING	-	1
20	219-2076-044	VANE	-	20
21	219-2076-045	SEAL, Section, Square	-	1
22	219-2076-046	SCREW	-	7
23	219-2076-047	PIN, Dowel	-	2
24	219-2076-048	PLATE, Pressure Port	-	1
25	219-2076-049	PIN, Dowel	-	4
26	219-2076-050	PLATE, Rear Port	-	1
27	219-2076-051	SCREW	-	4
28	219-2076-052	SEAL, Shaft	-	1
29	219-2076-053	SCREW	-	4
-	219-2076-054	KIT, Repair (Cartridge and Plate Assembly)	-	1
-	219-2076-055	KIT, Seal	-	1
-	219-2076-056	KIT, Shaft and Bearing	-	1
-	219-2076-057	PLATE, Port, Rear, with Bushing	-	1

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DENISON PUMP

219-2290



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DENISON PUMP

219-2290

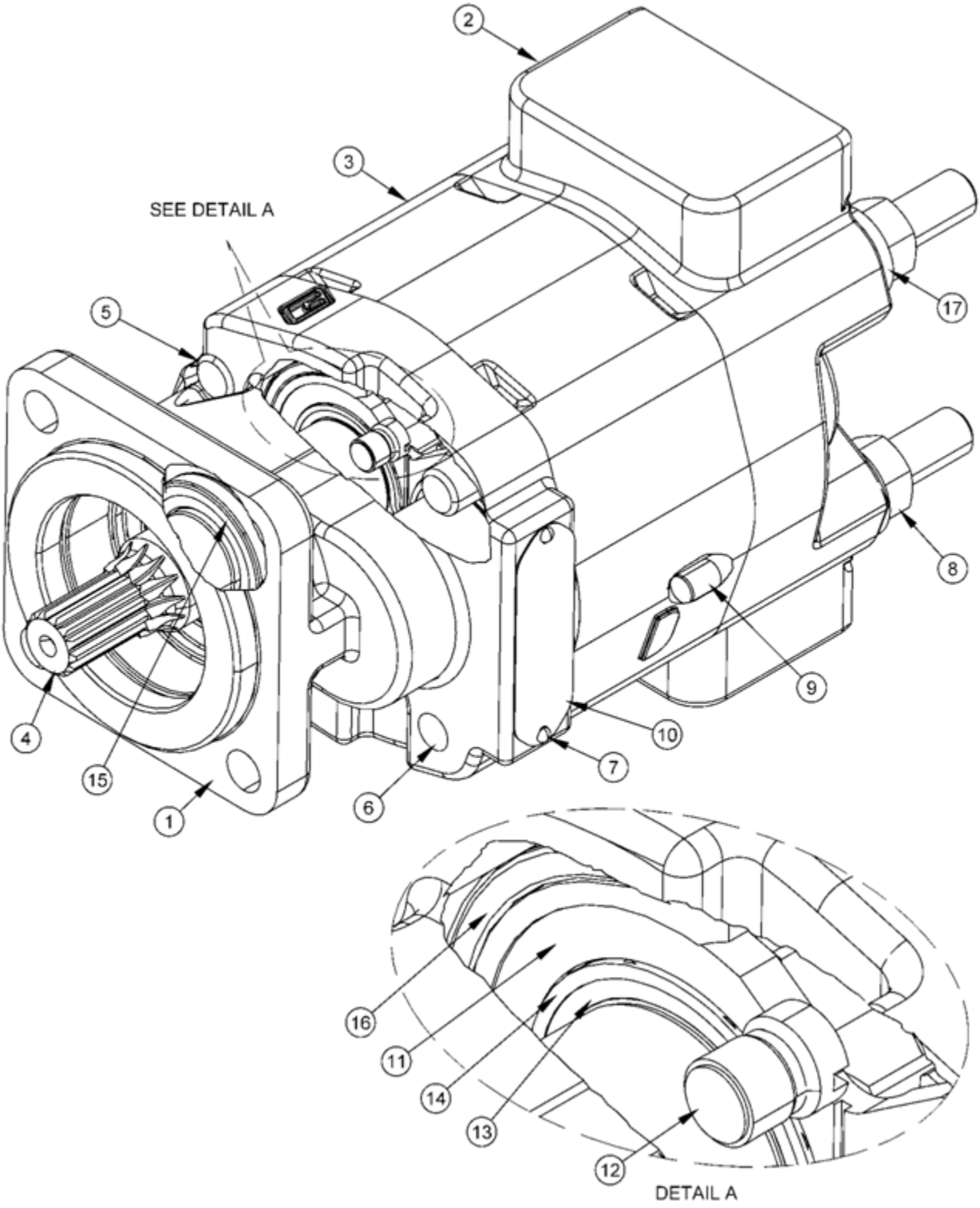
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	219-2290	PUMP, Denison	-	REF
1	219-2076-025	CAP, End		1
2	219-2076-026	SEAL, Section, Square		2
3	219-2076-027	RING, Back-Up		2
4	219-2076-028	PLATE, Pressure Port		1
5	219-2076-029	ASSEMBLY, Rotor Insert		1
6	219-2076-030	PLATE, Rear Port		1
7	219-2076-031	BEARING, Needle		1
8	219-2290-032	RING, Cam for 25 GPM, front, P1 pump, RH rotation		1
-8a	219-2290-070	RING, Cam for 25 GPM, rear, P2 pump, RH rotation		1
9	219-2076-033	O-RING		1
10	219-2076-034	ASSEMBLY, Rotor Insert		1
11	219-2076-035	SEAL, Section Square		2
12	219-2076-036	KEY		1
13	219-2076-037	SHAFT (Keyed)		1
14	219-2076-038	RING, Retaining		1
15	219-2076-039	BEARING, Ball		1
16	219-2076-040	RING, Section, Round		1
17	219-2076-041	CAP, Mounting		1
18	219-2076-042	PIN, Holdout, Vane		20
19	219-2076-043	HOUSING		1
20	219-2076-044	VANE		20
21	219-2076-045	SEAL, Section, Square		1
22	219-2076-046	SCREW		7
23	219-2076-047	PIN, Dowel		2
24	219-2076-048	PLATE, Pressure Port		1
25	219-2076-049	PIN, Dowel		4
26	219-2076-050	PLATE, Rear Port		1
27	219-2076-051	SCREW		4
28	219-2076-052	SEAL, Shaft		1
29	219-2076-053	SCREW		4
-	219-2256-100	KIT, Repair (Cartridge and Plate Assembly)		1
-	219-2076-055	KIT, Seal		1
-	219-2076-056	KIT, Shaft and Bearing		1
-	219-2076-057	PLATE, Port, Rear, with Bushing		1

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REAR PORTED GEAR PUMP

219-2315



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REAR PORTED GEAR PUMP

219-2315

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	219-2315	PUMP, Gear, Rear Ported	-	REF
1	219-2315-001	HOUSING, Sec	-	1
2	219-2315-002	HOUSNG, Pec	-	1
3	219-2315-003	HOUSING, Gear	-	1
4	219-2315-004	SHAFT, Gear, Set	-	1
5	219-2315-005	CAPSCREW	-	2
6	219-2315-006	STUD	-	2
7	219-2315-007	SCREW, Drive	-	2
8	219-2315-008	NUT, Hex	-	2
9	219-2315-009	PIN, Dowel	-	4
10	219-2315-010	PLATE, Name	-	1
11	219-2315-011	THRPL	-	2
12	219-2315-012	PLUG	-	1
13	219-2315-013	SEAL, Back-Up	-	2
14	219-2315-014	SEAL, Chain	-	2
15	219-2315-015	SEAL, Lip	-	1
16	219-2315-016	SEAL, Square	-	2
17	219-2315-017	WASHER	-	4
-18	219-2315-018	KIT, Seal (Soft Goods Kit)	-	1

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FRONT MOUNT DENISON PUMP

219-2321

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FRONT MOUNT DENISON PUMP

219-2321

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	219-2321	PUMP, Front Mount, Denison, T7D	-	REF

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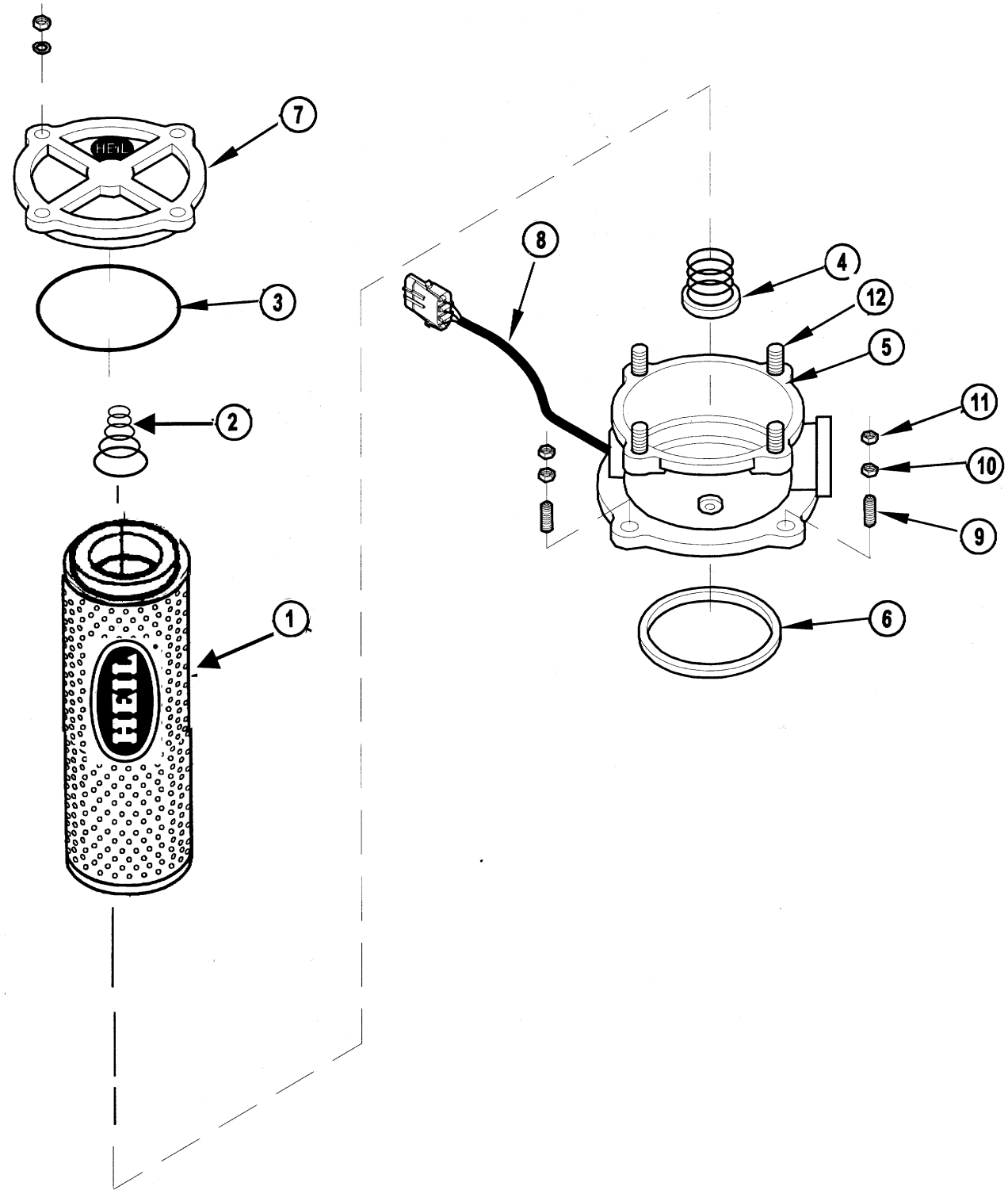
FILTER ASSEMBLY

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RETURN LINE FILTER

075-0912



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RETURN LINE FILTER

075-0912

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	075-0912	FILTER, Return Line	-	REF
1	075-0912-030	ELEMENT, Replacement Filter (3 Micron)	-	1
2	075-0912-004	SPRING (Part of Cover, Item 7)	-	1
3	075-0912-003	O-RING, Cover	-	1
4	NSS	ASSEMBLY, By-Pass (Part of Element)	-	1
5	075-0711-009	HEAD	-	1
6	075-0711-010	GASKET, Tank	-	1
7	075-0912-002	COVER (Includes Spring Item 2)	-	1
8	075-0711-012	INDICATOR, Electrical	-	1
9	047-2293-001	STUD, 3/8” Double End	-	4
10	FSP240900	NUT, Lock, 3/8”-24	-	4
11	FSP270900	NUT, Hex, 3/8”-24	-	4
12	075-0711-013	STUD	-	4

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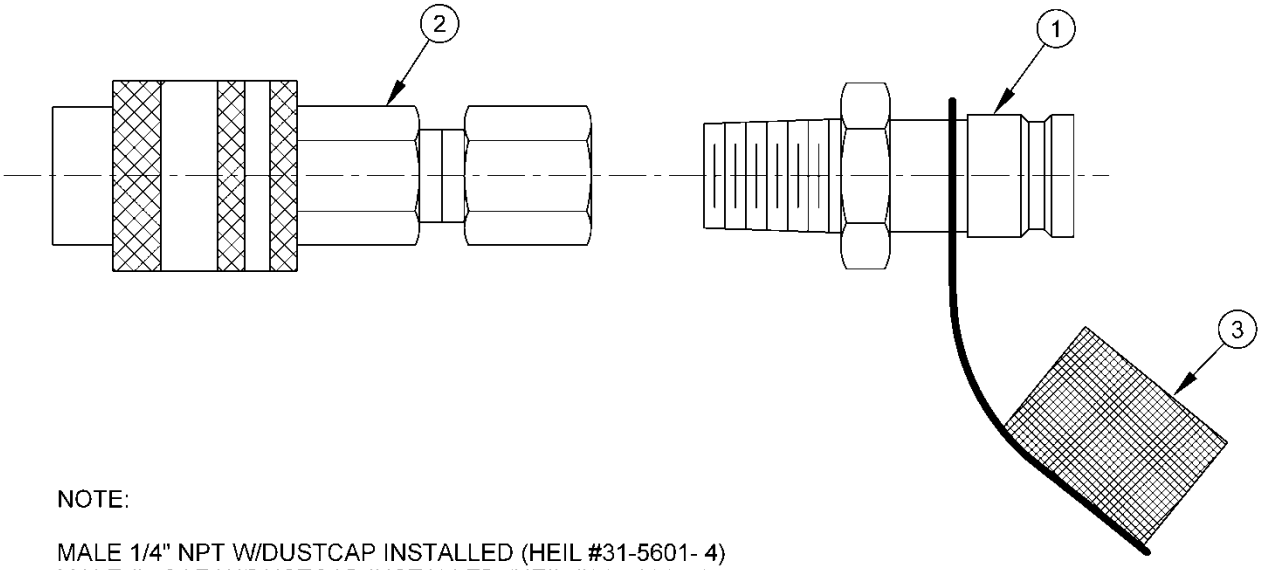
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QUICK DISCONNECT

031-5601



NOTE:

MALE 1/4" NPT W/DUSTCAP INSTALLED (HEIL #31-5601- 4)
MALE #4 SAE W/DUSTCAP INSTALLED (HEIL #31-5601- 4)
MALE #6 SAE W/DUSTCAP INSTALLED (HEIL #31-5601- 5)

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QUICK DISCONNECT

031-5601

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-5601	DISCONNECT, Quick	-	REF
1	031-5601-003	ADAPTOR, Male, 1/4", MNPT	-	1
2	031-5601-004	DISCONNECT, Quick, Male, SAE, #4	-	1
3	031-5601-005	DUST CAP	-	1

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SECTION 6
ELECTRICAL

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BODY ELECTRICAL KITS

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LED BODY ELECTRICAL/INPUT KITS

372-6644-REP, 372-6644-SMT, 372-6644-LED

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-6644-REP	KIT, Body Electrical/Input, LED Lighting		
		(See 701-8438-003 and 701-9006 in SM 10)	A	REF
-	372-6644-SMT	KIT, Body Electrical/Input, LED, Smart Lamps w/ Plugs, Amp		
		(See 701-8438-003 and 701-9006 in SM 10)	B	REF
-	372-6644-LED	KIT, Body Electrical/Input, LED, Plugs, AMP		
		(See 701-8438-003 and 701-9006 in SM 10)	C	REF
-1	372-2599-006	INSTALLATION, Hardware/Input Device, Body Electrical		
		(See Pg. 6011)	-	1
-2	372-6644-001	INSTALLATION, Electrical, Harness/Lighting, Plug, AMP		
		(See Pg. 6017)	-	1
-3	372-6644-003	KIT, Drop/Add, LED, Turn, Amber, Plug, AMP (See Pg. 6019)	A	1
-3a	372-6644-002	KIT, Drop/Add, Smart Lights, Plug, AMP (See Pg. 6021)	B	1
-4	372-6629	KIT, Strobe, Whelen (See Pg. 6021)	A	1

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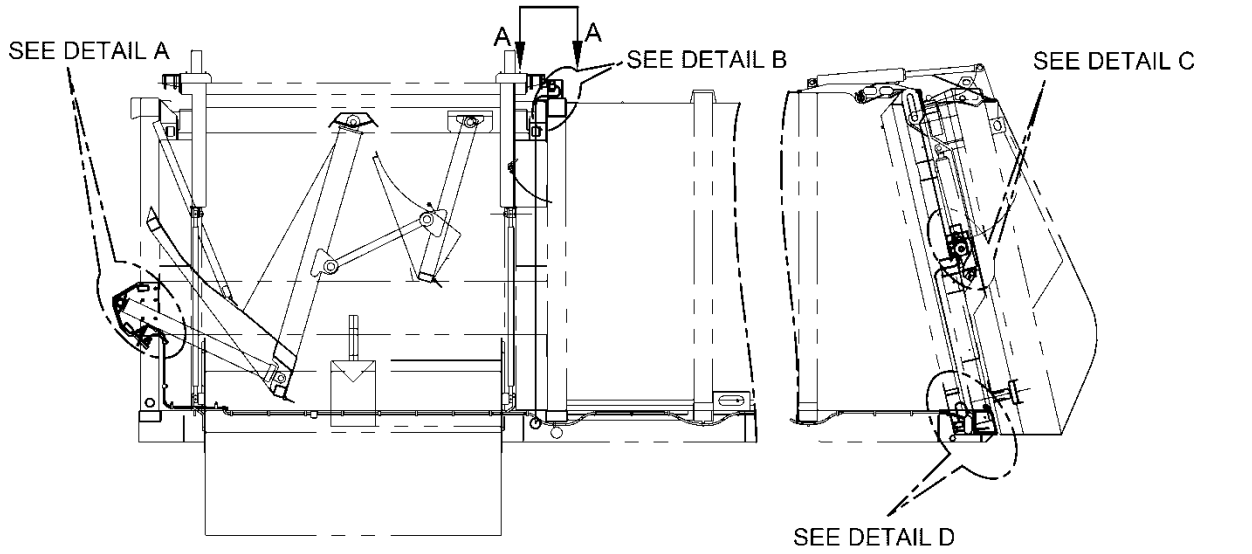
ELECTRICAL INSTALLATIONS

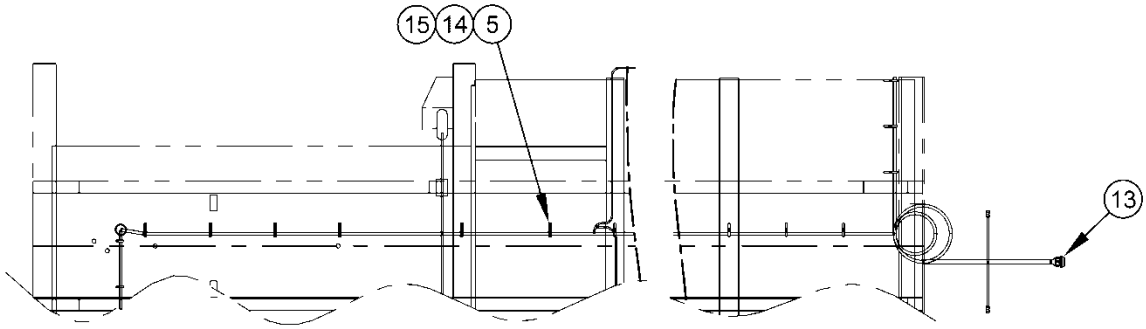
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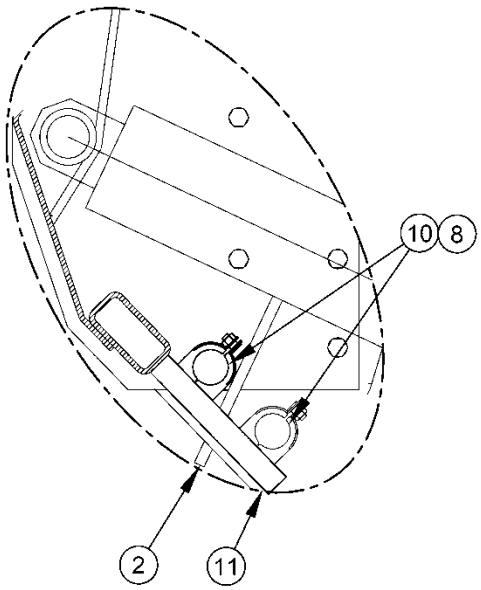
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HARDWARE/INPUT DEVICE BODY ELECTRICAL INSTALLATION

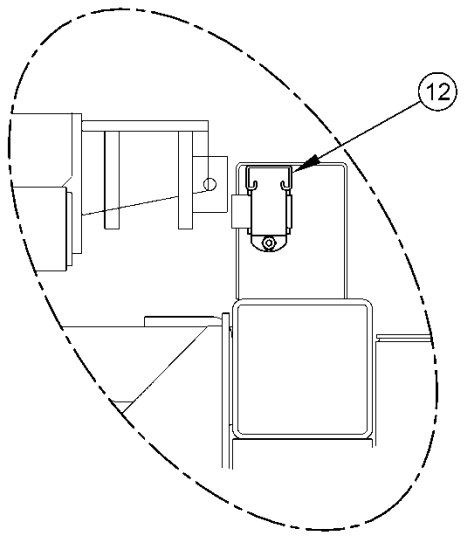
372-2599-006







DETAIL A



DETAIL B

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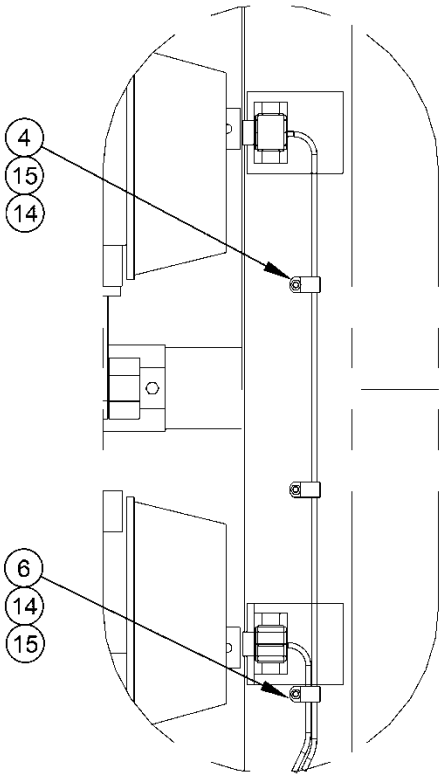
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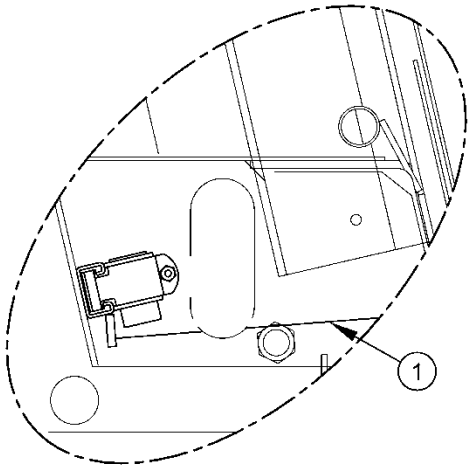
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HARDWARE/INPUT DEVICE BODY ELECTRICAL INSTALLATION

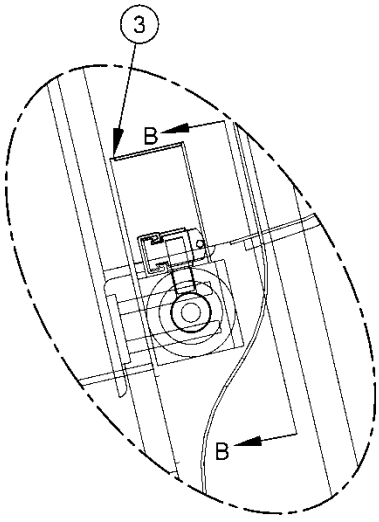
372-2599-006



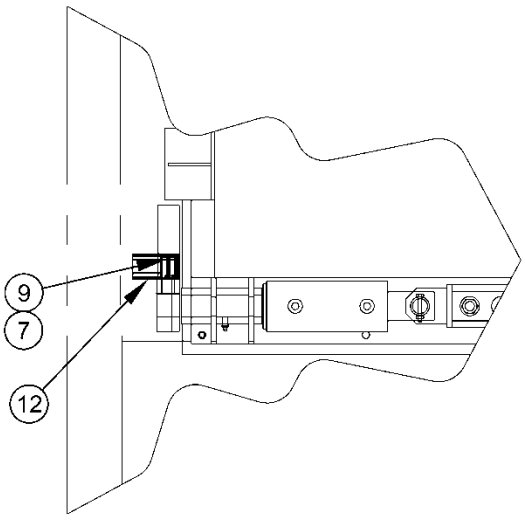
VIEW A A



DETAIL C



DETAIL D



VIEW B B

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HARDWARE/INPUT DEVICE BODY ELECTRICAL INSTALLATION

372-2599-006

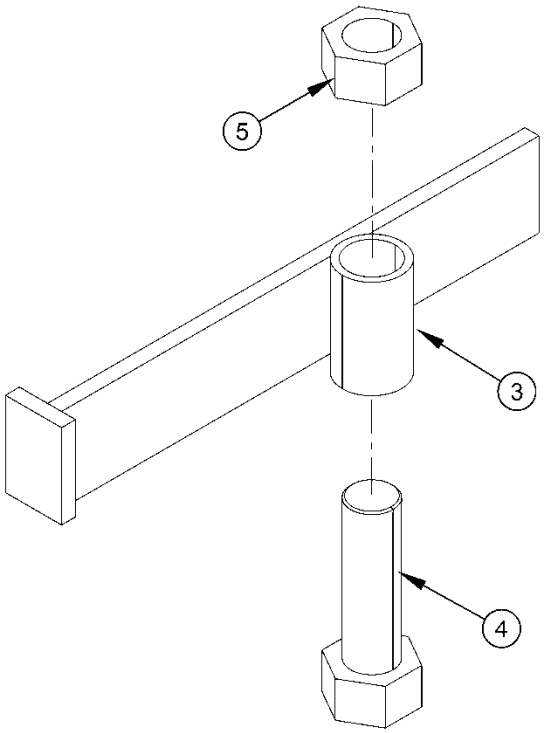
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2599-006	INSTALLATION, Body Electrical, Hardware/Input Device	-	REF
1	013-5141	ASSEMBLY, Lever, Tailgate Switch (See Pg. 6013)	-	1
2	013-5203-002	LEVER	-	1
3	035-3015	GUARD, Proximity Switch	-	1
4	036-1122-006	CLAMPS, Tube, Wire, 3/8" x 13/32”	-	2
5	036-1122-031	CLAMPS, Tube, Wire, 1-5/16" x 9/32”	-	25
6	036-1295-002	CLAMP, Tube/Wire, 7/8”	-	10
7	036-1474-006	ASSEMBLY, Clamp, Hydraulic Tubing, 3/4”	-	1
8	036-1474-009	ASSEMBLY, Clamp, Hydraulic Tubing, 1-1/4”	-	5
9	063-0108	SWITCH, Proximity, NO, Sourcing, 18 mm.	-	1
10	063-0109	SWITCH, Proximity, NO, Sourcing, 30 mm.	-	5
11	207-2938-003	CHANNEL, Unistrut, 6”	-	1
12	207-2938-006	CHANNEL, Clamp, Hydraulic Tubing	-	3
13	263-1037-003	HARNESS, Input Device, Main Body (See SM 10)	-	1
14	FS070720	HHCS, 1/4”-20 x 1’’, Gr. 5	-	40
15	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	40

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TAILGATE SWITCH LEVER ASSEMBLY

013-5141



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TAILGATE SWITCH LEVER ASSEMBLY

013-5141

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	013-5141	ASSEMBLY, Lever, Tailgate Switch	-	REF
3	013-5141-003	COLLAR, Tailgate Switch (Item Welded)	-	1
4	FS101534	HHCS, 3/4”-16 x 2-1/2”, Gr. 5	-	1
5	FS271500	NUT, Hex, 3/4”	-	1

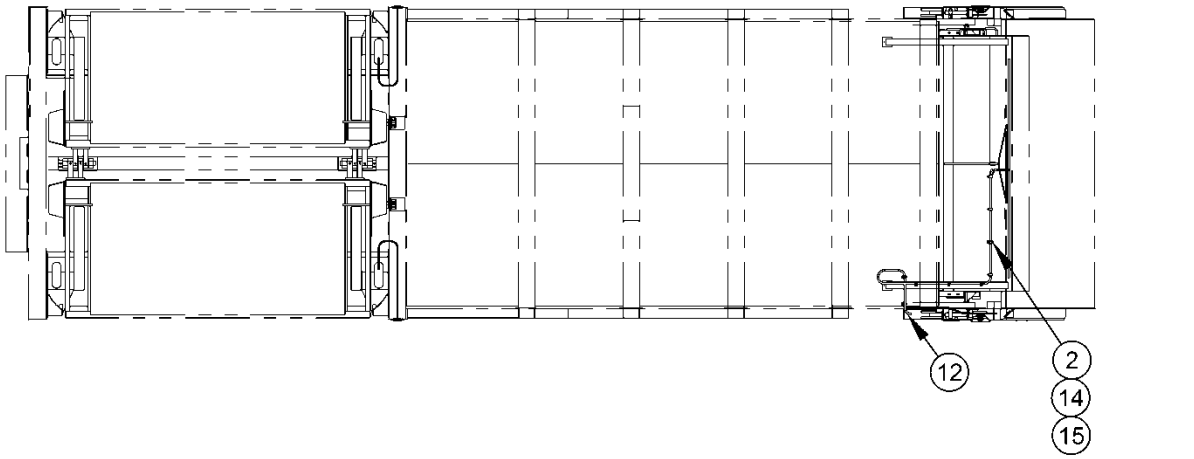
Note: Items 1 and 2 are Welded.

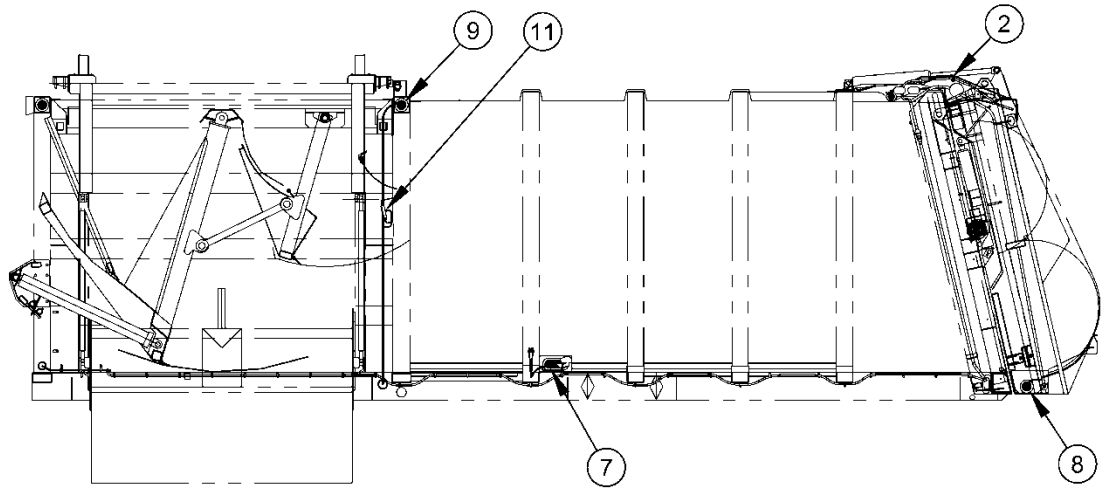
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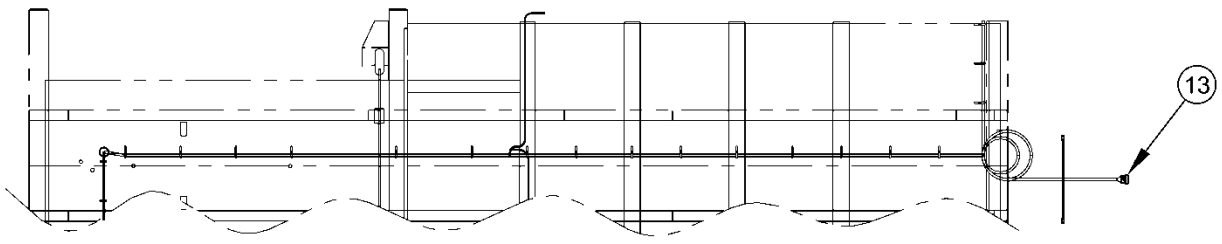
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AMP PLUGS HARNESS/LIGHTING ELECTRICAL INSTALLATION

372-6644-001







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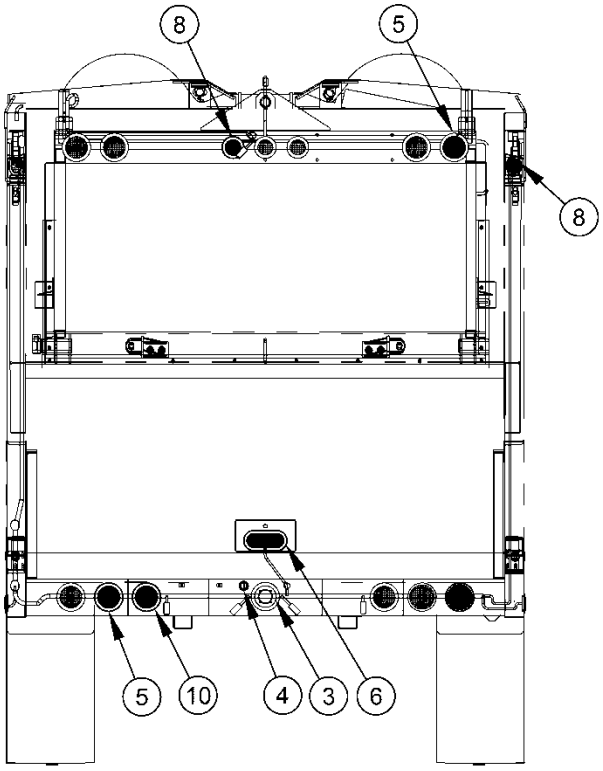
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AMP PLUGS HARNESS/LIGHTING ELECTRICAL INSTALLATION

372-6644-001



SHEET 2 OF 2

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AMP PLUGS HARNESS/LIGHTING ELECTRICAL INSTALLATION

372-6644-001

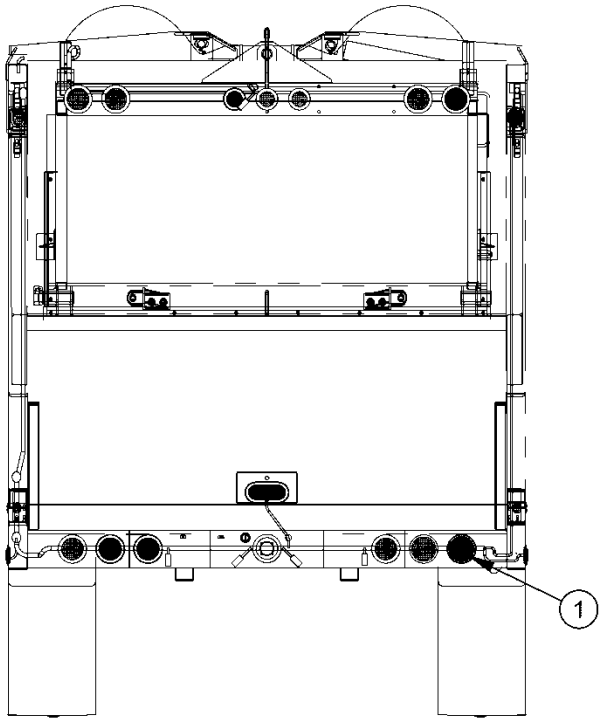
7ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-6644-001	INSTALLATION, Electrical, Harness/Lighting, Plugs, AMP	-	REF
-1	036-1115	CLAMP, Strap, Plastic	-	100
2	036-1295-002	CLAMP, Tube/Wire, 7/8”	-	10
3	108-7726	ASSEMBLY, Alarm, Back-Up, Flush Mount, 4” Rd. (See Pg. 6019)	-	1
4	115-0608	LIGHT, License (See SM 7)	-	1
5	115-1227	ASSEMBLY, Light, LED, STT, Red, 4” Rd. (See SM 7)	-	8
6	115-1229	ASSEMBLY, Light, LED, Stop, Red, Oval (See SM 7)	-	1
7	115-1395	ASSEMBLY, Light, Mid-Body Turn, Oval, Amber (See SM 7)	-	2
8	115-1402	ASSEMBLY, Light, LED, Clearance, Red (See SM 7)	-	7
9	115-1403	ASSEMBLY, Light, LED, Clearance, Amber (See SM 7)	-	6
10	115-1411	LIGHT, LED, Reverse (See SM 7)	-	2
11	115-1417	LIGHT, Flood, LED, 4” (See SM 7)	-	2
12	263-1658	HARNESS, Tailgate, LED, Connectors, AMP (See SM 10)	-	1
13	263-1659	HARNESS, Body/Light, Main, Output Device	-	1
14	FS070720	HHCS, 1/4”-20 x 1’’, Gr. 5	-	10
15	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	10

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AMP PLUGS AMBER TURN LED LIGHTING DROP/ADD KIT
372-6644-003



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4” ROUND BACK-UP FLUSH MOUNT ALARM ASSEMBLY
108-7726

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-7726	ASSEMBLY, Alarm, Back-Up, Flush Mount, 4” Round	-	REF
-1	108-7726-001	ALARM, Back-Up, Flush Mount, Rd.	-	1
-2	115-0742-002	GROMMET, Mount (See SM 7)	-	1
-3	263-1309-004	HARNESS, Adapter, Alarm (See SM 10)	-	1

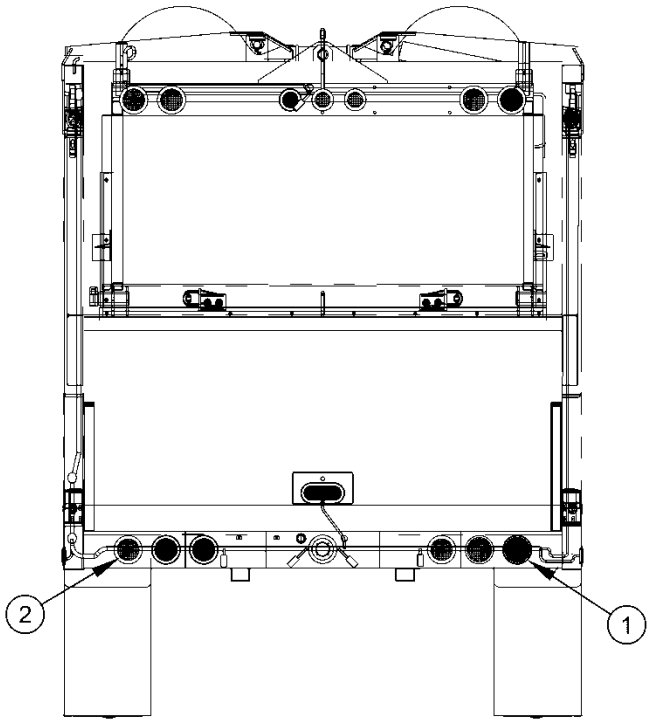
AMP PLUGS AMBER TURN LED LIGHTING DROP/ADD KIT
372-6644-003

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-6644-003	KIT, Drop/Add, LED, Turn, Amber, Plugs, AMP	-	REF
1	115-1418	LIGHT, LED, Turn, Amber, 4” Rd. (See SM 7)	-	4
-2	-	NA	-	REF

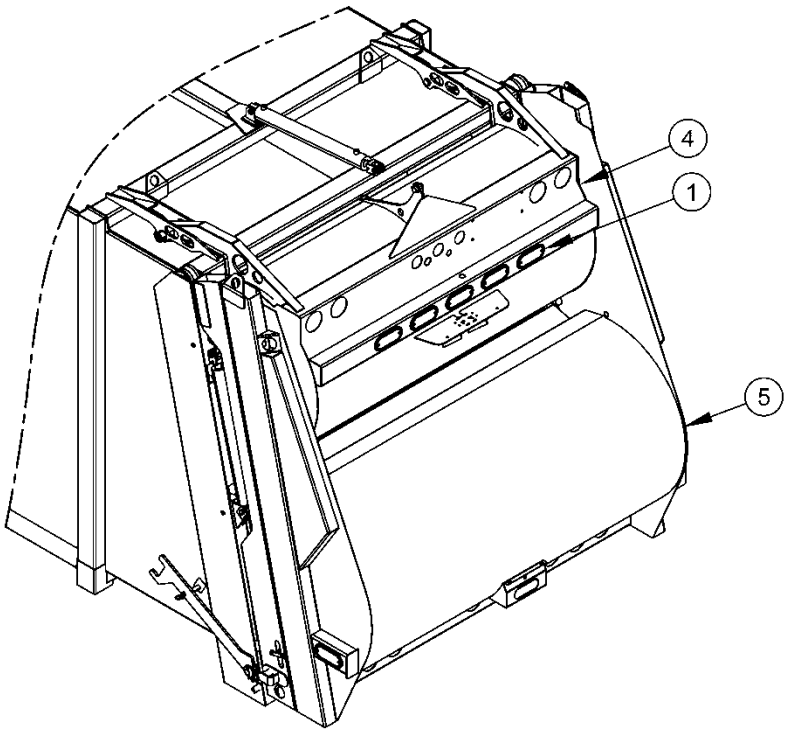
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AMP PLUGS SMART LIGHTS DROP/ADD KIT
372-6644-002



WHELEN STROBE KIT
372-6629



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AMP PLUGS SMART LIGHTS DROP/ADD KIT
372-6644-002

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-6644-002	KIT, Drop/Add, Smart Lights, Plugs, AMP	-	REF
1	115-1409	LIGHT, Smart Light, w/Adapter, Packard (See SM 7)	-	2
2	115-1410	LIGHT, Smart Light, w/Adapter, Packard (See SM 7)	-	2
-3	-	NA	-	REF

WHELEN STROBE KIT
372-6629

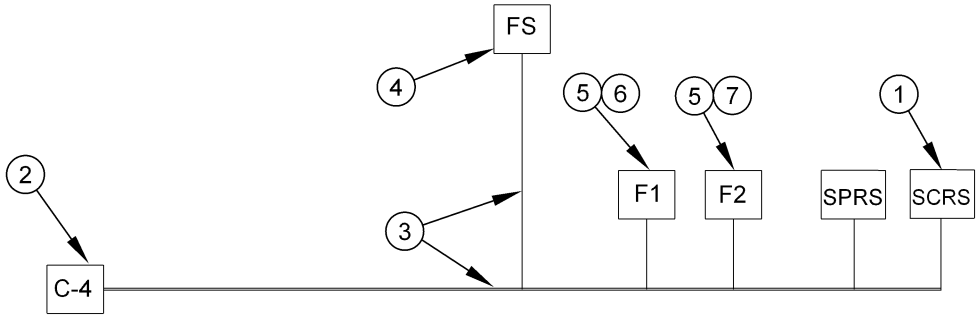
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-6629	KIT, Strobe, Whelen	-	REF
1	115-1419	LIGHT, Strobe, Oval, Sync. (See SM 7)	-	7
-2	254-4768	INSTALLATION, Electrical, Control, Strobe Light (See Pg. 6023)	-	1
-3	263-1573-009	HARNESS, Tailgate, Whelen (See Pg. 6025) (See SM 10)	-	1
4	372-6629-001	WELDMENT, Bracket, Tailgate, Upper Light	-	1
5	372-6629-002	WELDMENT, Bracket, Tailgate, Lower, Drop/Add		
		Brace, Light, Republic (Item Welded)	-	1

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STROBE LIGHT CONTROL HARNESS
263-1635



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STROBE LIGHT CONTROL ELECTRICAL INSTALLATION

254-4768

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4768	INSTALLATION, Electrical, Control, Strobe Light	-	REF
-1	263-1635	HARNESS, Control, Strobe Light (See Pg. 6023) (See SM 10)	-	1

STROBE LIGHT CONTROL HARNESS

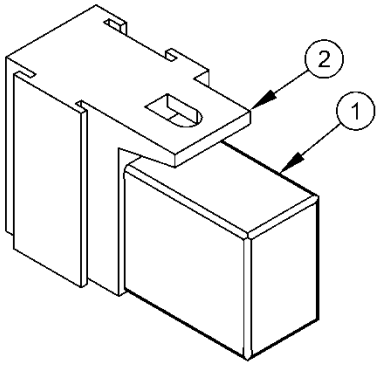
263-1635

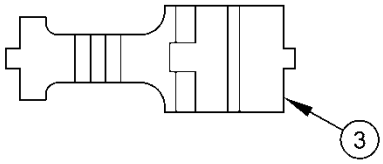
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1635	HARNESS, Control, Strobe Light (See SM 10)	-	REF
1	069-0032	KIT, Micro Relay (See Pg. 6025)	-	2
2	105-6461-06P	PLUG, Male, 6 Way	-	1
3	108-2648	DIODE, Silicon Rectifier	-	4
4	108-6461-004	RECEPTACLE, Str., 4 Way, Deutsch DT Series	-	1
5	108-7790	HOLDER, Fuse, Mini-Blade, w/Cover	-	2
6	108-7112-010	FUSE, Blade, Mini	-	2

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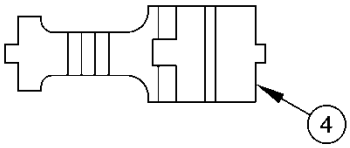
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MICRO RELAY KIT
069-0032



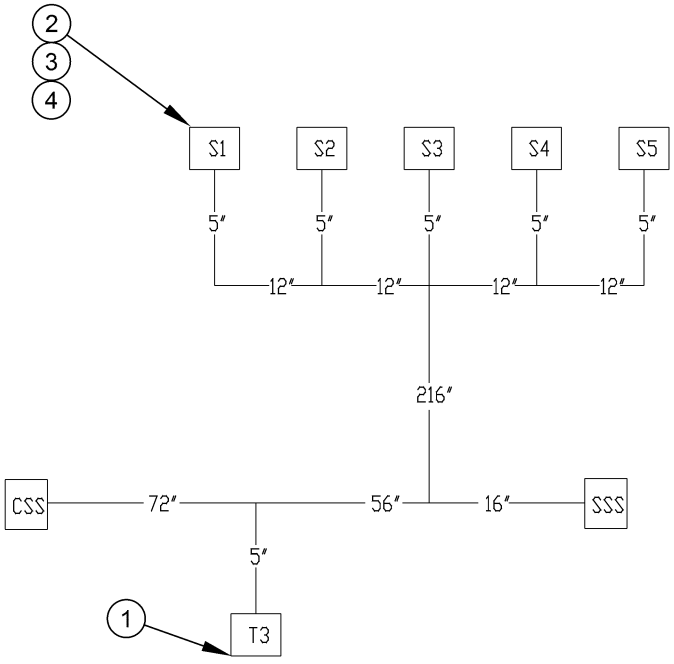


AMP
12-16 AWG 1/4" TERMINAL



GROTE & HARTMANN
18 AWG 1/4" TERMINAL

WHELEN TAILGATE HARNESS
263-1573-009



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MICRO RELAY KIT
069-0032

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	069-0032	KIT, Micro Relay	-	REF
1	069-0032-001	RELAY, Micro, 12 V DC	-	1
2	069-0032-002	CONNECTOR, Micro Relay	-	1
3	069-0032-003	TERMINAL, Micro Relay, 1/4"	-	2
4	069-0032-004	TERMINAL, Micro Relay, 3/16”	-	3

WHELEN TAILGATE HARNESS
263-1573-009

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	263-1573-009	HARNESS, Tailgate, Whelen (See SM 10)	-	REF
1	108-6461-012	RECEPTACLE, Str., 2 Way, Deutsch DT Series	-	1
2	108-8493-003	HOUSING, Plug, 3-Way, Black	-	7
3	108-8493-007	RECEPTACLE, Contacts, 18-1/2 mm. - 15-1/2 mm. AWG	-	21
4	108-8493-010	SEALS, 2-1/2 mm. – 3-1/3 mm.	-	21

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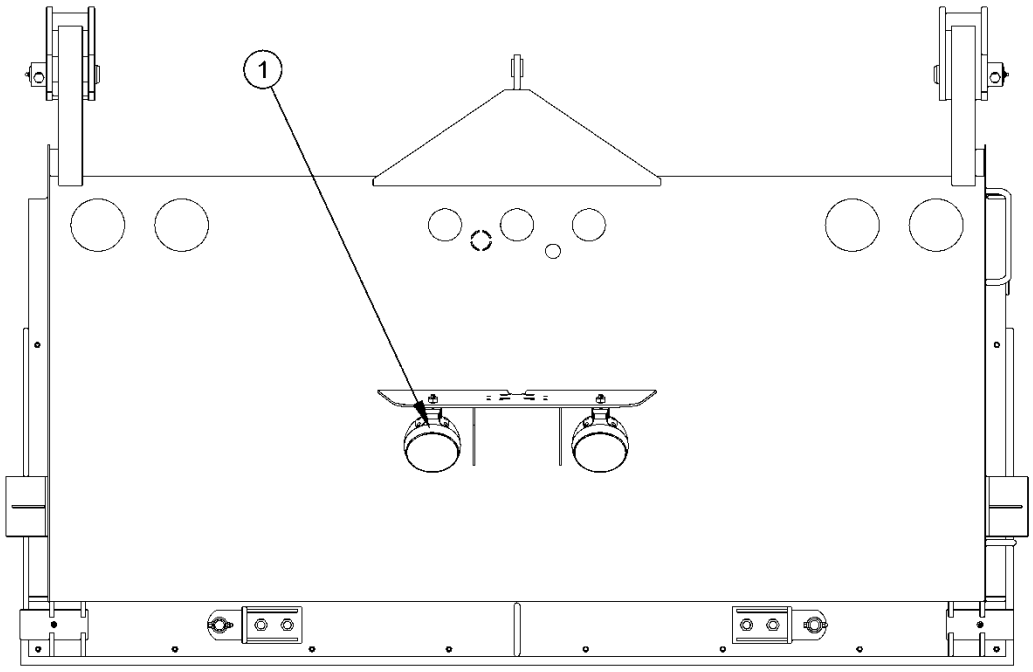
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TAILGATE LIGHTS

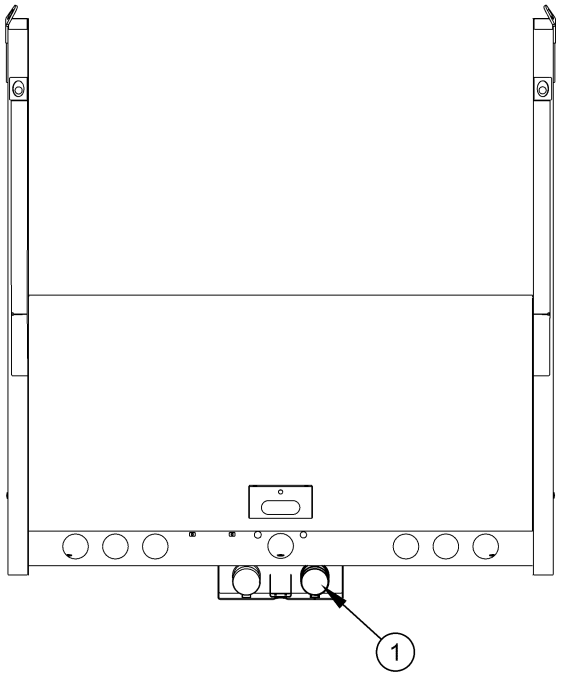
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UPPER TAILGATE INSTALLATION
372-5093



WASTE MANAGEMENT TAILGATE WORK LIGHT KIT
372-5086



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UPPER TAILGATE INSTALLATION
372-5093

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5093	INSTALLATION, Tailgate, Upper	-	REF
1	115-1400	LIGHT, Flood, LED (See SM 7)	-	2
-2	263-0891-004	HARNESS, Tailgate, Middle Cluster (See SM 10)	-	1

WASTE MANAGEMENT TAILGATE WORK LIGHT KIT
372-5086

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5086	KIT, Work Light, Tailgate, Waste Management	-	REF
1	115-1226	ASSEMBLY, Work Light, w/Connector (See SM 7)	-	2
-2	263-0891-004	HARNESS, Tailgate, Middle Cluster (See SM 10)	-	1

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THROTTLE ADVANCE KIT

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THROTTLE ADVANCE KIT

372-6081-003

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THROTTLE ADVANCE KIT

372-6081-003

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-6081-003	KIT, Throttle Advance	-	REF
-1	036-1640-208	TIE, Wire, 7-1/25”, #50	-	4
-2	263-1593-003	HARNESS, Throttle Advance (See SM 10)	-	1

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SECTION 7
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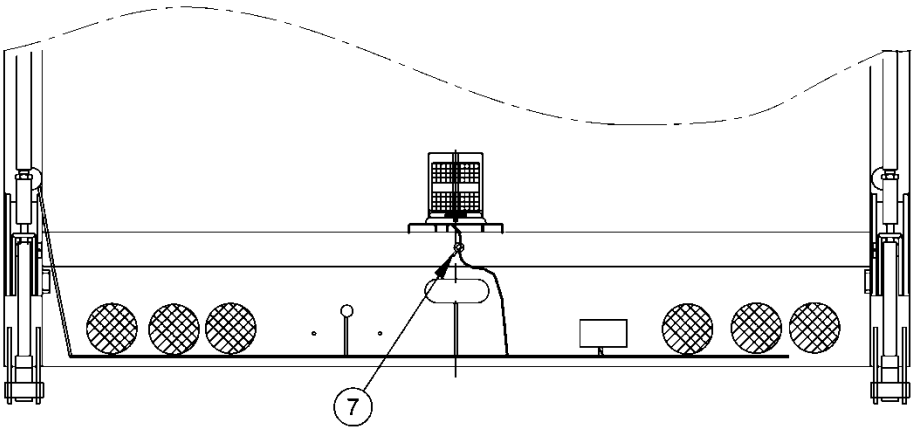
LIGHT KITS

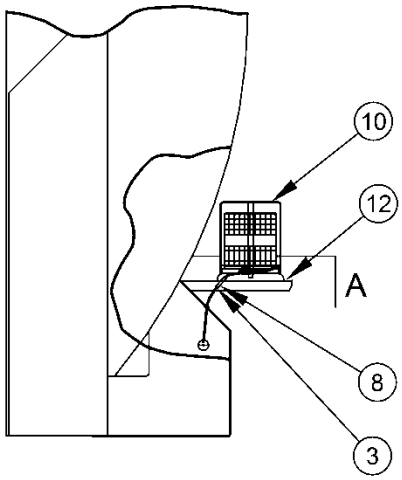
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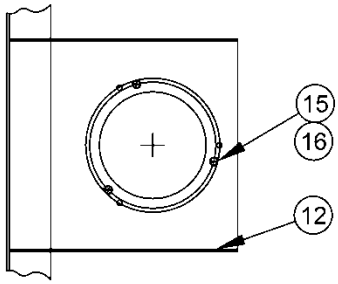
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5 YARD TAILGATE STROBE LIGHT KITS

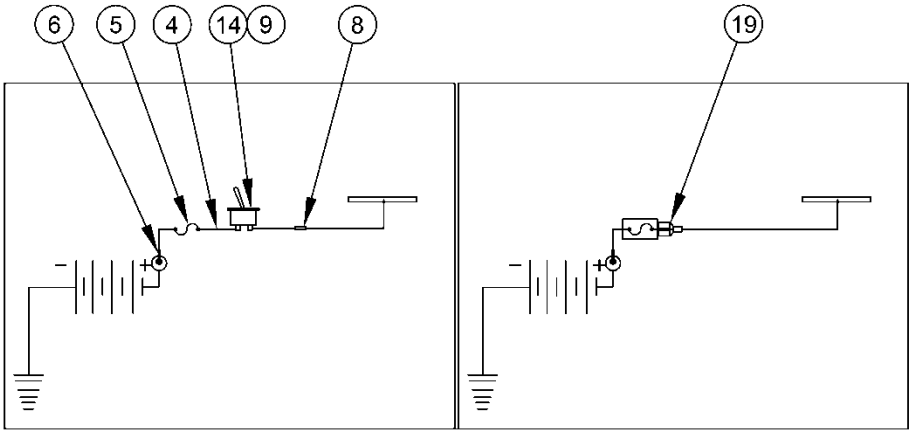
272-4558-001, 272-4558-002







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5 YARD TAILGATE STROBE LIGHT KITS

272-4558-001, 272-4558-002

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-4558-001	KIT, Light, Strobe, Tailgate, 5 Yd., In Cab Switch	A	REF
-	272-4558-002	KIT, Light, Strobe, Tailgate, 5 Yd., Back-Up Switch	B	REF
3	036-1249	CLAMP, Wire Loom	-	1
4	108-0432-004	WIRE, Automotive, # 14 Ga., Red	A	4'
5	108-0647	HOLDER, Fuse, In-Line	A	1
6	108-0807	TERMINAL, Ring Tongue, 16-10 Ga.	A	3
7	108-0952	GROMMET, Rubber, 3/16”	-	1
8	108-1110-002	CONNECTOR, Butt, 14-16 Ga	-	2
9	108-1814	SWITCH, Toggle, SPST	A	1
10	115-1232	KIT, Strobe Light w/Brush Guard (See SM 7)	-	1
12	211-9115	BRACKET, Strobe Light	-	1
14	212-0943	DECAL, Beacon Light	A	1
15	FS420520	SCREW, Mach., Rd. Hd., 5/32”-24 x 1”	-	3
16	FS290500	NUT, Jam, 5/32”-24	-	4

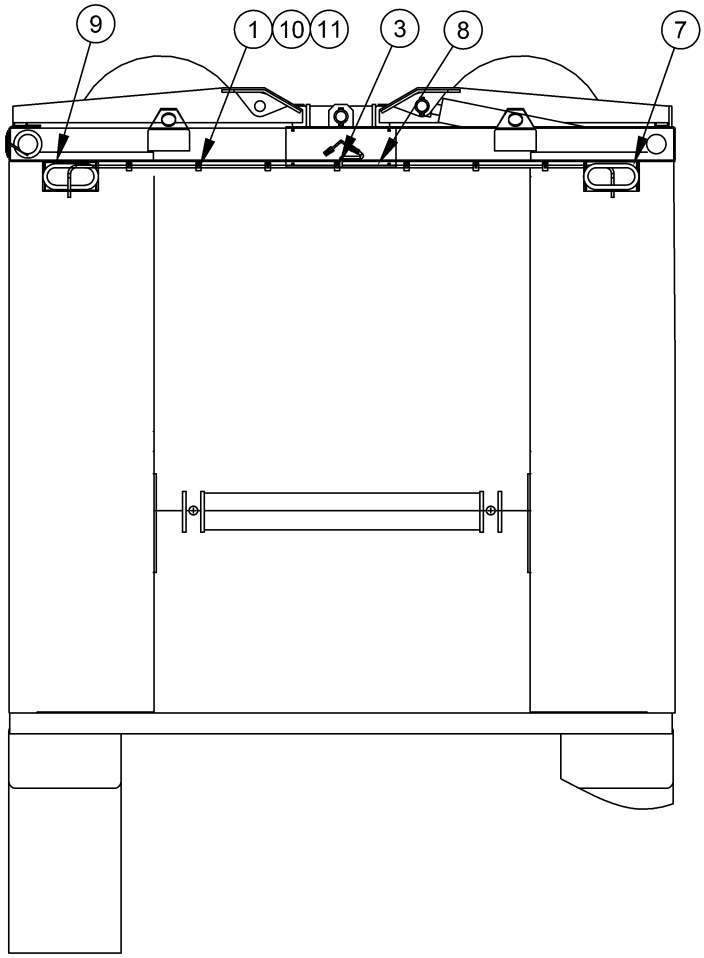
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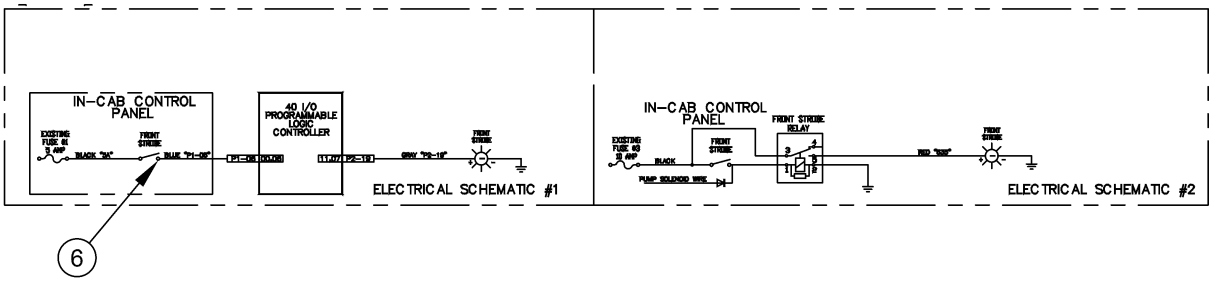
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DUAL FRONT MOUNT LED STROBE INSTALLATION

372-1993-054





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DUAL FRONT MOUNT LED STROBE INSTALLATION

372-1993-054

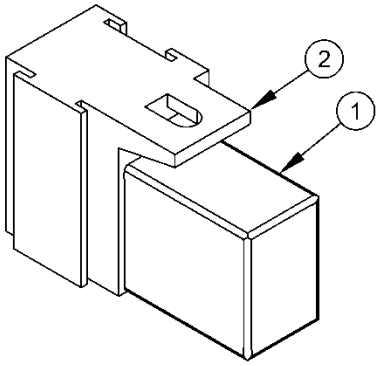
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-1993-054	INSTALLATION, Strobe, LED, Front Mount, Dual	-	REF
1	036-1295-002	CLAMP, Tube/Wire, 7/8”	-	10
-2	069-0032	KIT, Micro Relay (See Pg. 7009)	-	1
3	108-1493	GROMMET, Rubber	-	1
-4	108-5632	DIODE, Electronic Control, 1 Amp.	-	1
-5	108-5717-002	CONNECTOR, Butt, Non Insulated, 16-14 Ga.	-	1
6	108-7760	SWITCH, Rocker Type, SPST	-	1
7	115-1180	LIGHT, LED, Strobe, Oval, Amber (See SM 7)	-	2
8	263-0899-002	HARNESS, LED Strobe, Front Mount, Allied (See SM 10)	-	1
9	311-3176	BRACKET, Stop, High Mount, Waste Management	-	2
10	FS070720	HHCS, 1/4”-20 x 1’’, Gr. 5	-	10
11	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	10

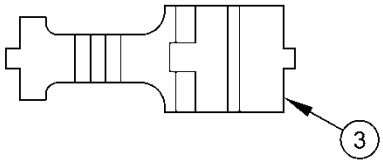
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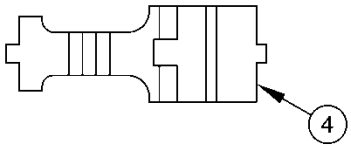
MICRO RELAY KIT

069-0032





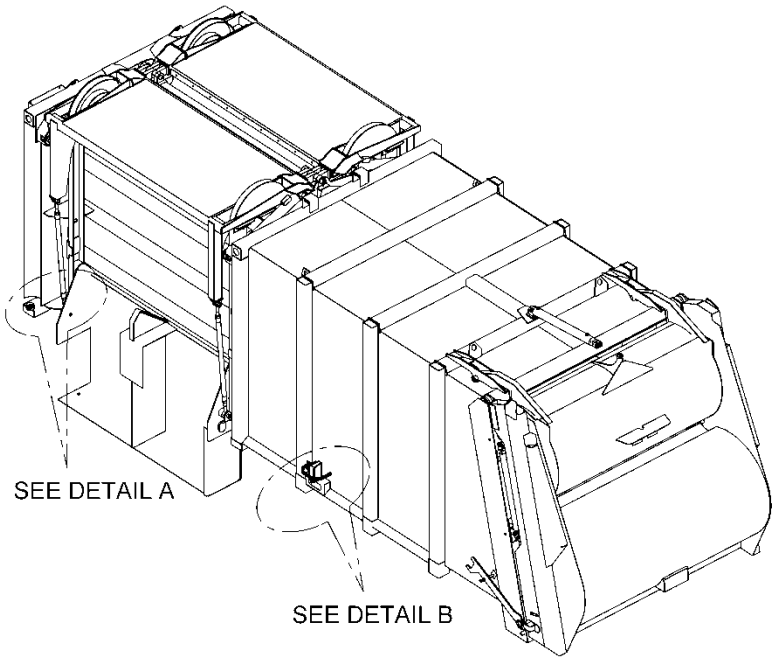
AMP
12-16 AWG 1/4" TERMINAL

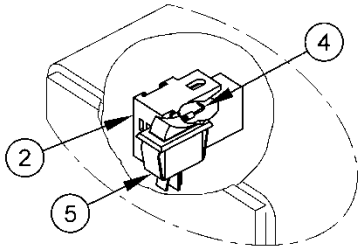


GROTE & HARTMANN
18 AWG 1/4" TERMINAL

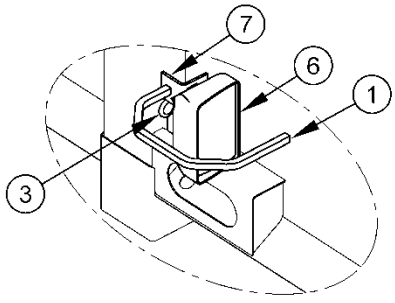
REVERSE SIDE MOUNTED FLOOD LIGHTS

372-1993-222





DETAIL A



DETAIL B

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MICRO RELAY KIT

069-0032

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	069-0032	KIT, Micro Relay	-	REF
1	069-0032-001	RELAY, Micro, 12 V DC	-	1
2	069-0032-002	CONNECTOR, Micro Relay	-	1
3	069-0032-003	TERMINAL, Micro Relay, 1/4”	-	2
4	069-0032-004	TERMINAL, Micro Relay, 3/16”	-	3

REVERSE SIDE MOUNTED FLOOD LIGHTS

372-1993-222

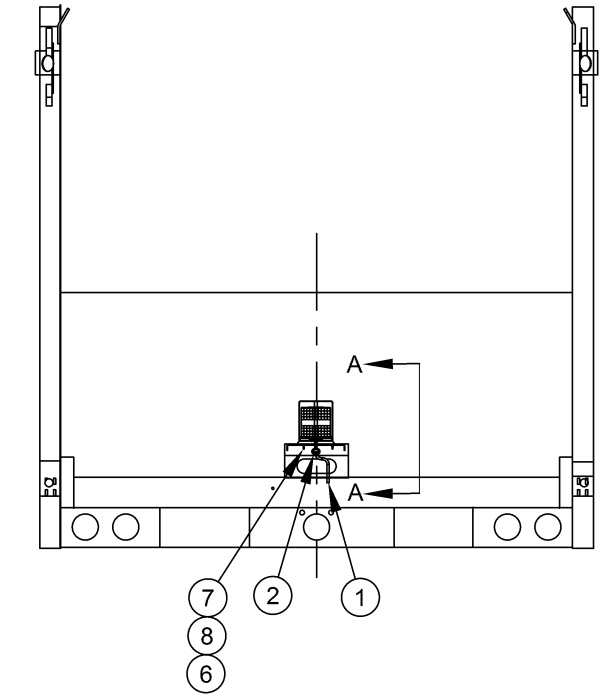
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-1993-222	LIGHTS, Flood, Side Mounted, Reverse	-	REF
1	035-3313	GUARD, Flood Light, Side Mounted	-	2
2	069-0032	KIT, Micro Relay (See Pg. 7009)	-	1
3	108-1493	GROMMET, Rubber	-	2
4	108-5632	DIODE, Electronic Control, 1 Amp.	-	1
5	108-7760	SWITCH, Rocker Type, SPST	-	1
6	115-1224	ASSEMBLY w/Connection, Light, Trapezoidal Beam (See SM 7)	-	2
7	311-0655	BRACKET, Side Light, Rear	-	2

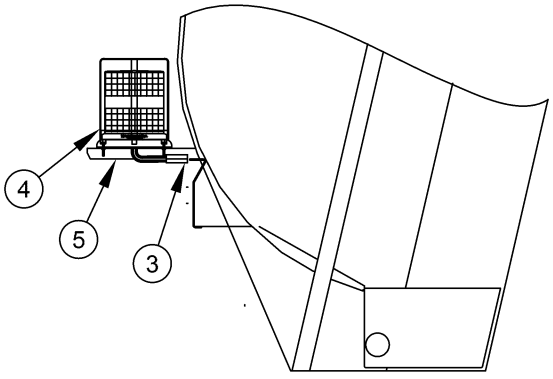
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IGNITION POWER 360° TAILGATE MOUNT STROBE INSTALLATION

372-1993-007





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IGNITION POWER 360° TAILGATE MOUNT STROBE INSTALLATION

372-1993-007

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-1993-007	INSTALLATION, Strobe, Tailgate Mount, 360°, Ignition Power	-	REF
1	108-0952	GROMMET, 3/16", Rubber	-	1
2	108-4470	LOOM, Electrical, 3/8”	-	1'
3	108-6461-012	RECEPTACLE, Str., 2-Way, Deutsch DT Series	-	1
4	115-1232	KIT, Strobe Light w/Brush Guard (See SM 7)	-	1
5	211-4445	BRACKET, Warning Light	-	1
6	FS270400	NUT, #10-32	-	3
7	FS420421	SCREW, Mach., Rd. Hd., #10-24 x 1-1/8”	-	3
8	FS550400	WASHER, Lock, #10, Plated	-	3

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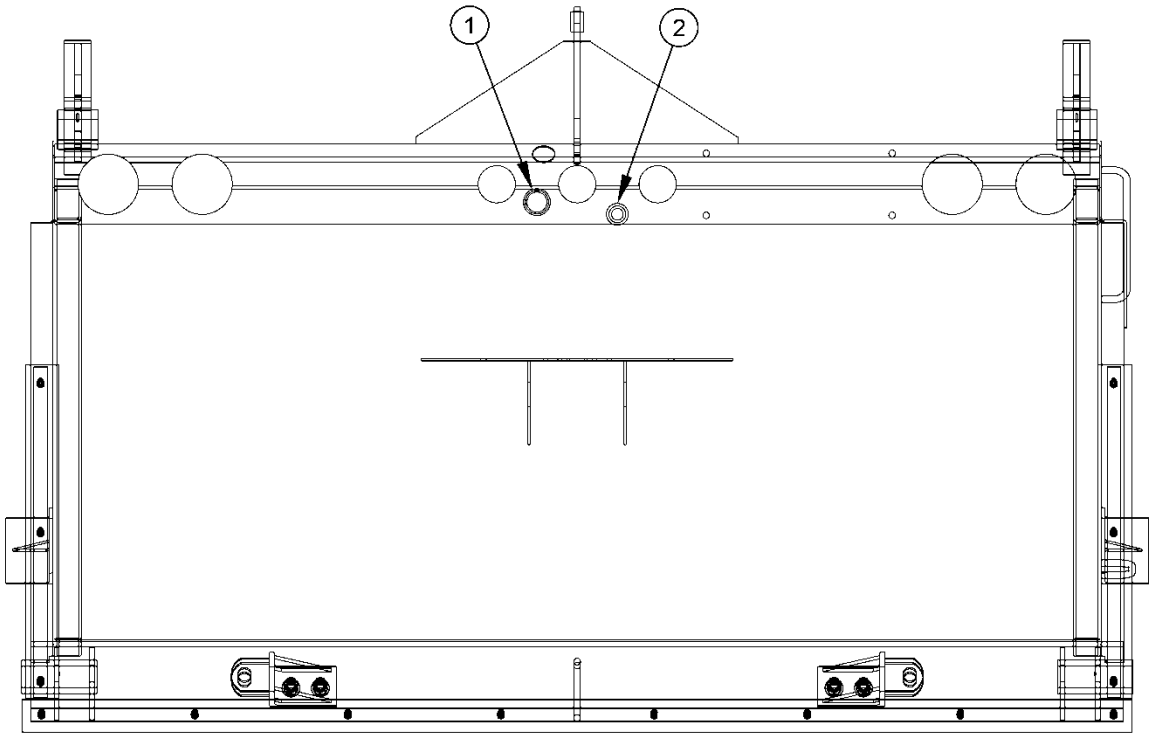
CAMERA KIT

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REAR CAMERA GROMMET KIT

372-5462



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REAR CAMERA GROMMET KIT

372-5462

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5462	KIT, Grommet, Camera, Rear	-	REF
1	003-4514-002	GROMMET, Generic, Black Rubber, 1-3/4"	-	1
2	003-4514-007	GROMMET, Generic, Black Rubber, 1-1/4"	-	1

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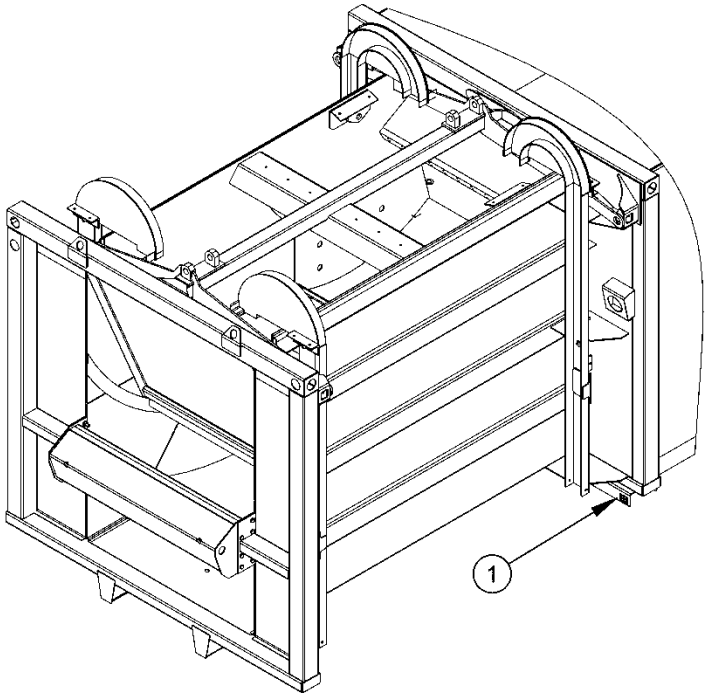
MISCELLANEOUS OPTIONAL KITS

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FIRE EXTINGUISHER BRACKET MOUNT KIT

372-4812



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FIRE EXTINGUISHER BRACKET MOUNT KIT

372-4812

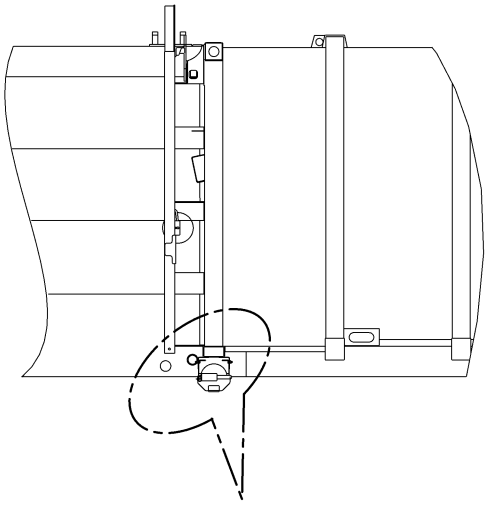
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4812	KIT, Mount, Bracket, Fire Extinguisher	-	REF
1	126-6923	BRACKET, Mount, Fire Extinguisher	-	2

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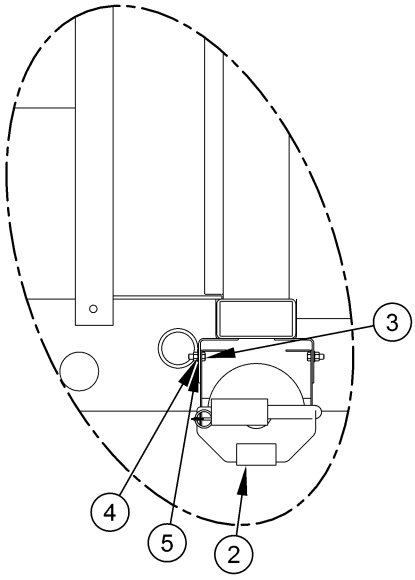
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FIRE EXTINGUISHER BODY MOUNT KIT

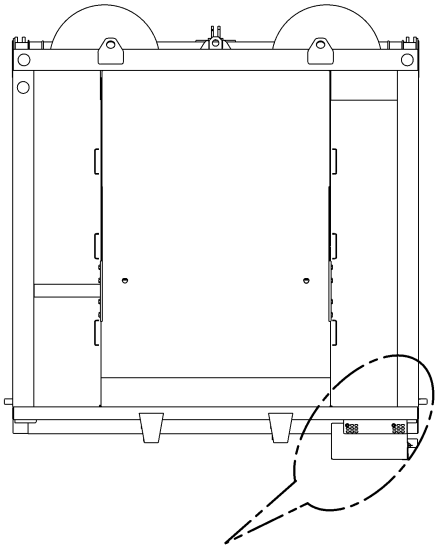
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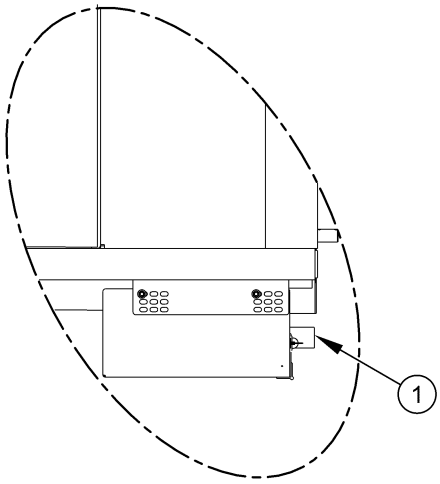
SEE DETAIL A



DETAIL A



SEE DETAIL B



DETAIL B

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FIRE EXTINGUISHER BODY MOUNT KIT

372-4813

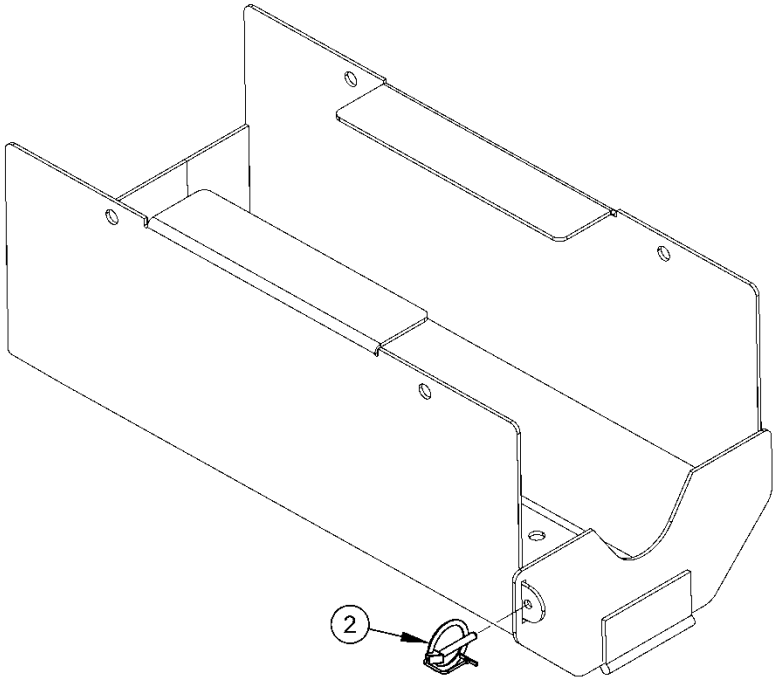
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4813	KIT, Mount, Body, Fire Extinguisher	-	REF
1	161-0345	EXTINGUISHER, Fire, 20#, 7.38" Dia.	-	1
2	311-4647-001	WELDMENT, Bracket, Fire Extinguisher (See Pg. 7023)	-	1
3	FSP070920	HHCS, 3/8”-16 x 1”, Gr. 5, Plated	-	4
4	FSP230900	NUT, Lock, 3/8”-16, Gr. 5, Plated	-	4
5	FSP520900	WASHER, Flat, 3/8”, SAE, Plain	-	4

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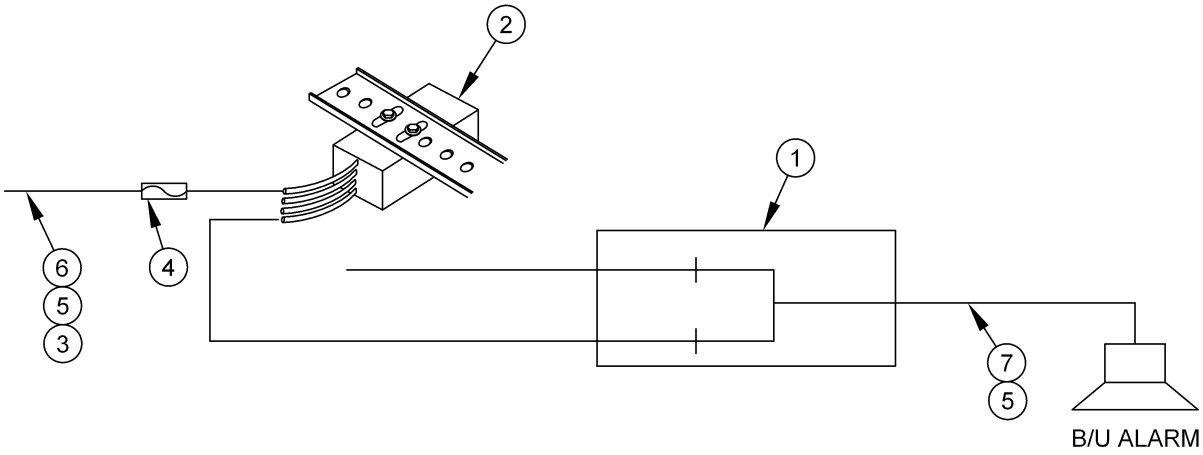
FIRE EXTINGUISHER BRACKET WELDMENT

311-4647-001



CALIFORNIA BACKUP ALARM

272-6409



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FIRE EXTINGUISHER BRACKET WELDMENT

311-4647-001

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	311-4647-001	WELDMENT, Bracket, Fire Extinguisher	-	REF
2	047-2569	PIN, Lynch w/Chain, 3/16”	-	1

Note: Items 1, 3 and 4 are Welded.

CALIFORNIA BACKUP ALARM

272-6409

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-6409	ALARM, Backup, California	-	REF
1	108-5705	ASSEMBLY, Diode, Blocking	-	1
2	272-5594	SENSOR and BRACKET	-	1
3	036-1640-208	TIE, Cable, 7-1/2"	-	REF
4	108-0647	HOLDER, Fuse, In-Line	-	1
5	108-5034-001	LOOM, Electrical, Split Convoluted, Plastic, 1/4”	-	40’
6	108-5233-017	WIRE, Black, 16 Ga.	-	20’
7	108-5233-023	WIRE, Pink, 16 Ga.	-	20’

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57 GALLON FUEL TANK

020-2303

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	020-2303	TANK, Fuel, 57 Gal.	-	REF

TOOL BOX KIT

151-3036

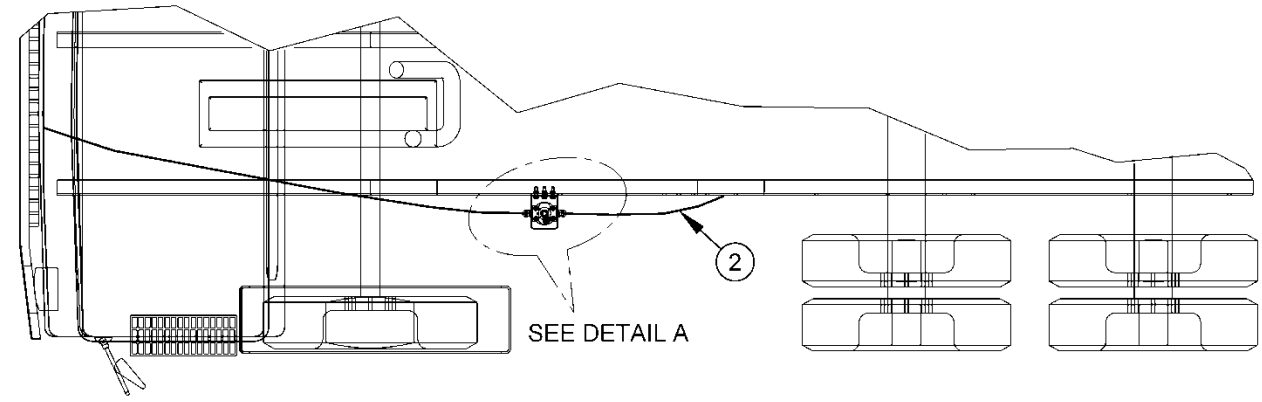
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	151-3036	KIT, Tool Box	-	REF

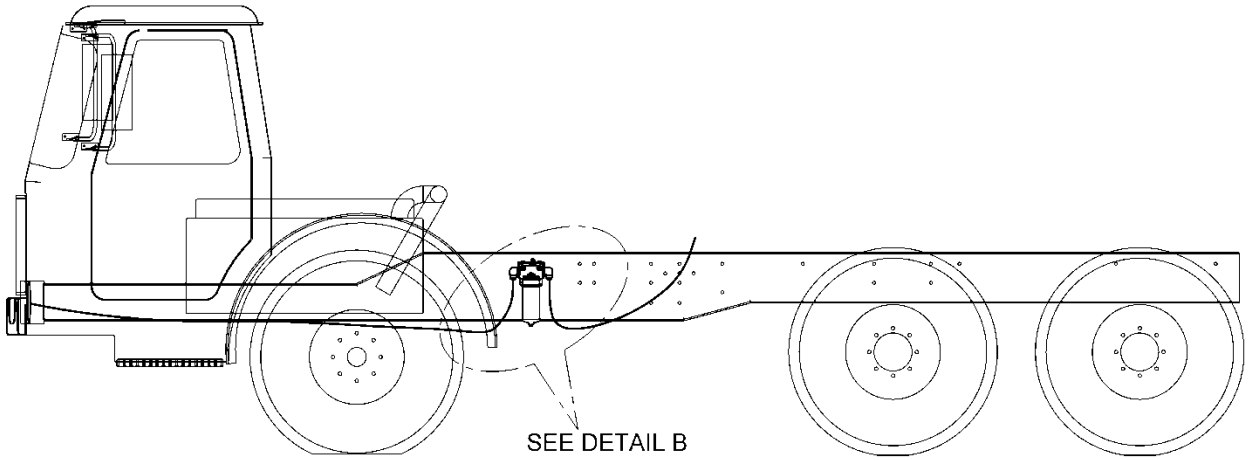
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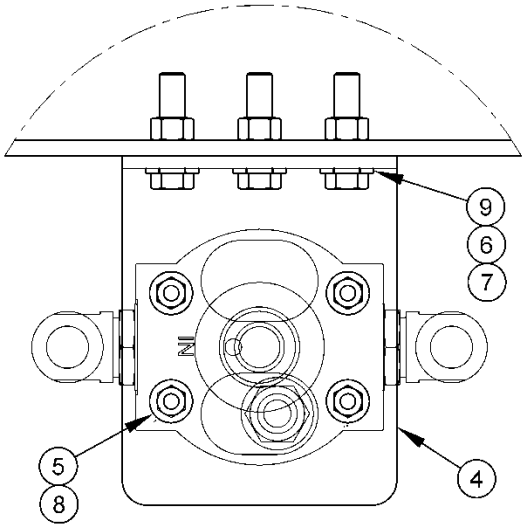
Recycle 2000™

HIGH PRESSURE FILTER KIT

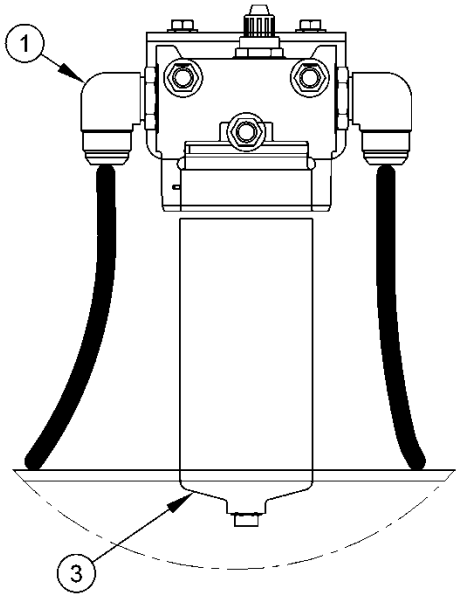
272-5082







DETAIL A



DETAIL B

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HIGH PRESSURE FILTER KIT

272-5082

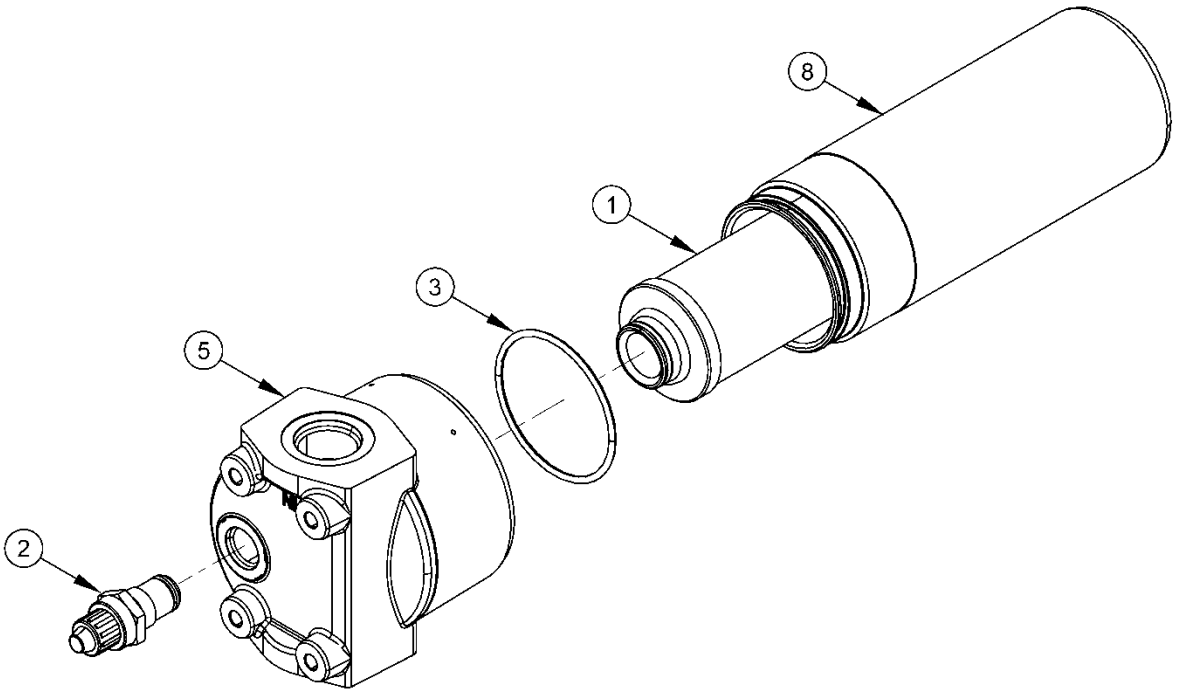
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-5082	KIT, Filter, High Pressure	-	REF
1	054-3340-010	ELBOW, 90°, Male, Tube to Str. Thd., 7/8"-14	-	2
2	057-1719-002	HOSE, High Pressure, 130”	-	1
3	075-0930	FILTER, Pressure, Filter Head (See Pg. 7029)	-	1
4	311-3852	BRACKET, High Pressure Filter	-	1
5	FS070920	HHCS, 3/8”-16 x 1”, Gr. 5	-	4
6	FS071130	HHCS, 1/2"-13 x 2”, Gr. 5	-	3
7	FS231100	NUT, Lock, 1/2”-13, Gr. 5	-	3
8	FS520900	WASHER, Flat, 3/8” SAE, Plain	-	4
9	FS521100	WASHER, Flat, 1/2", SAE, Plain	-	3

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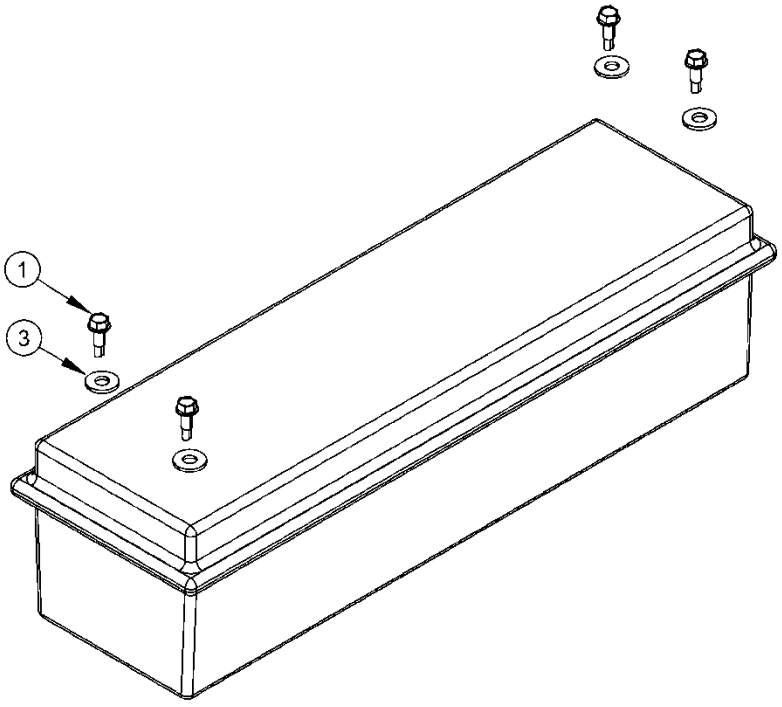
PRESSURE-FILTER FILTER HEAD

075-0930



SAFETY TRIANGLE KIT

161-0405



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PRESSURE-FILTER FILTER HEAD

075-0930

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	075-0930	HEAD, Filter, Pressure-Filter	-	REF
1	075-0930-001	ELEMENT, Filter, 10 Micron	-	1
2	075-0930-003	INDICATOR, Filter	-	1
3	NSSS	O-RING	-	1
-4	075-0930-004	KIT, Seal, Buna	-	1
5	NSS	HEAD, Filter	-	1
8	075-0930-002	BOWL, Filter	-	1

Note: Items 6, 7 and 9 are Not Available.

SAFETY TRIANGLE KIT

161-0405

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	161-0405	KIT, Triangle, Safety	-	REF
1	047-2151-011	SCREW, Tek, 1/4”-14 x 1”	-	4
-2	161-0047	REFLECTOR, Triangle, Safety	-	1
3	FS510700	WASHER, Flat, 1/4”, Std., Plain	-	4

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75 GALLON FUEL TANK

020-2445

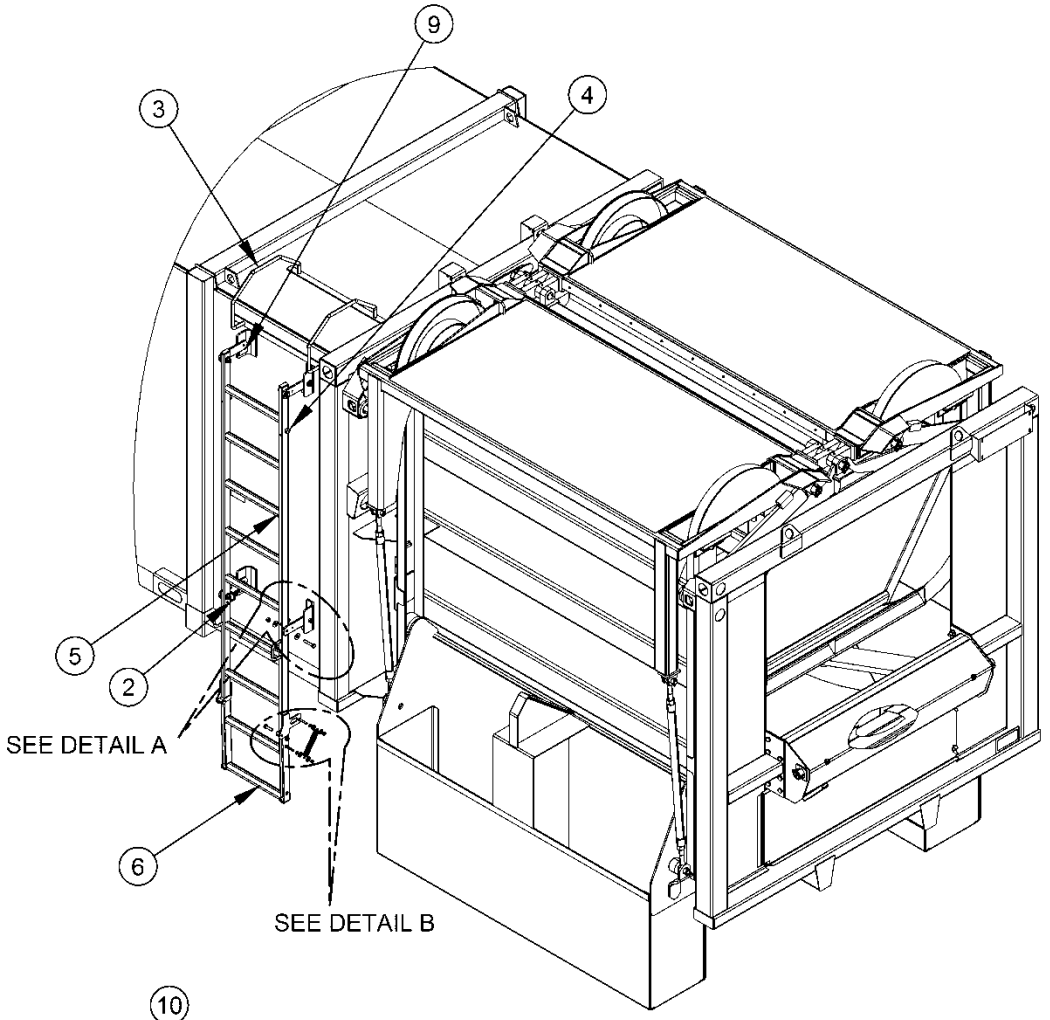
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	020-2445	TANK, Fuel, 75 Gal.	-	REF

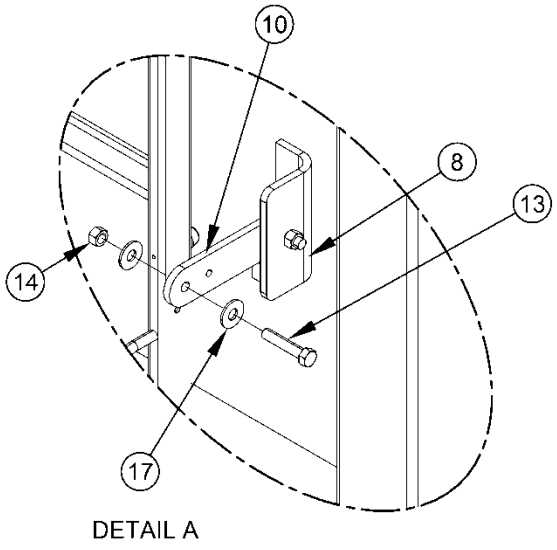
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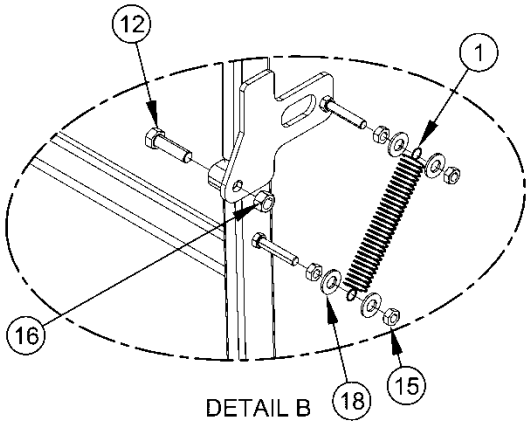
Recycle 2000™

SIDE LADDER ASSEMBLY

372-2321







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SIDE LADDER ASSEMBLY

372-2321

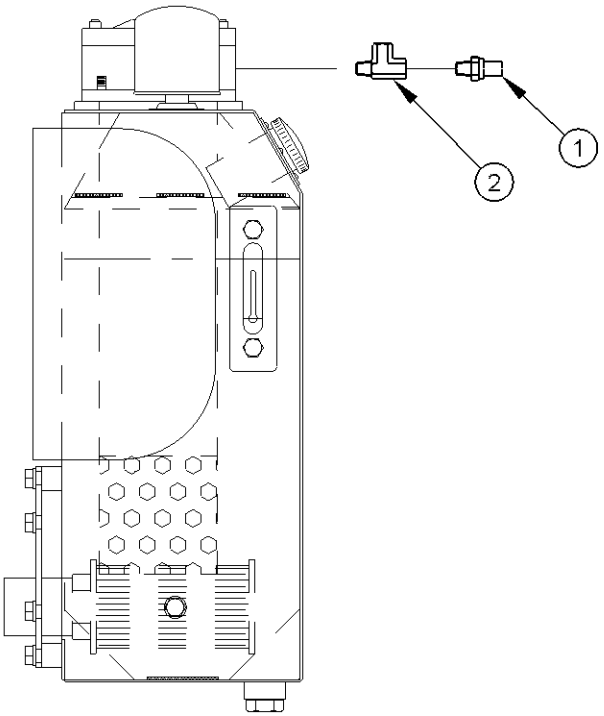
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2321	ASSEMBLY, Ladder, Side	-	REF
1	019-1095	SPRING, 1" OD x 6"	-	1
2	047-2390	PIN, Quick Release	-	1
3	070-1989	ASSEMBLY, Grab Handle, Short (Item Welded)	-	1
4	080-1584-011	BUMPER, Rubber, 1”	-	6
5	121-2560	WELDMENT, Ladder	-	1
6	121-2561	WELDMENT, Ladder, Rear	-	1
-7	212-1716-006	DECAL, Caution, Ladder	-	1
8	311-1982	BRACKET, Pivot, Ladder	-	4
9	311-1983	BRACKET, Stop	-	4
10	311-1984	ASSEMBLY, Link, 3/8", Hi-Tension	-	4
-11	FS370614	RIVETS, 3/16” x 11/16”	-	6
12	FSP071126	HHCS, 1/2”-13 x 1-3/4”, Gr. 5, Plated	-	2
13	FSP071134	HHCS, 1/2"-13 x 2-1/2”, Gr. 5, Plated	-	4
14	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	8
15	FSP280900	NUT, Hex, 3/8”-16, Plated	-	4
16	FSP281100	NUT, Hex, 1/2"-13, Plain	-	2
17	FSP511100	WASHER, Flat, 1/2" Std., Plain	-	20
18	FSP521100	WASHER, Flat, 1/2", SAE, Plain	-	4
-19	-	NA	-	REF

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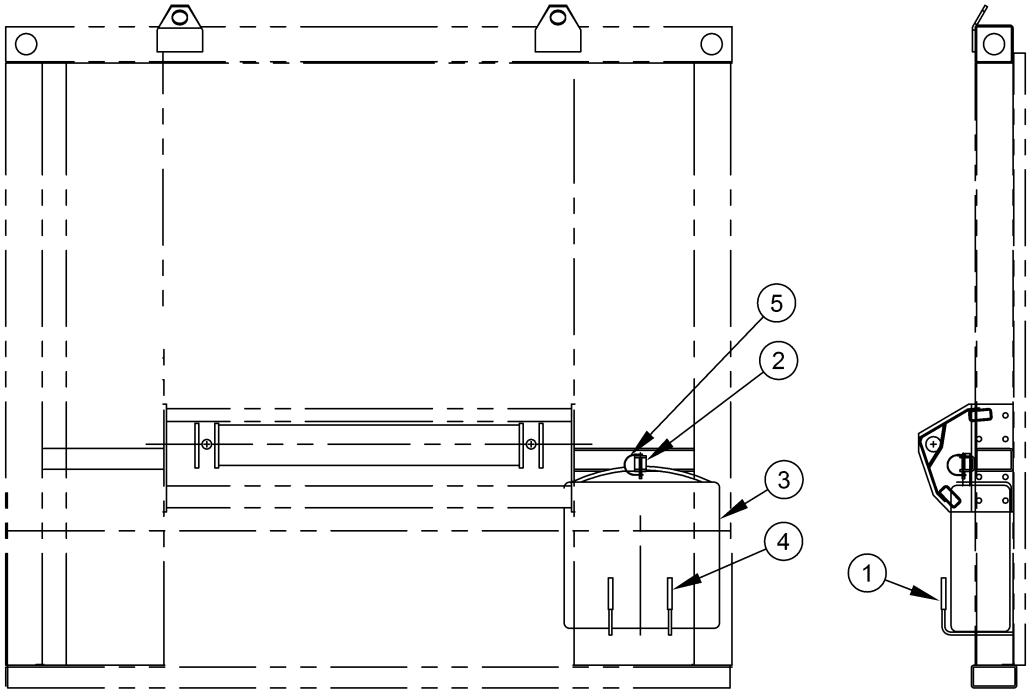
OIL SAMPLING KIT

372-2427



OIL SPILL KIT INSTALLATION

372-2425



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OIL SAMPLING KIT

372-2427

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2427	KIT, Sampling, Oil	-	REF
1	031-6312	VALVE, Sampling, 1/4" NPT	-	1
2	054-9160-003	TEE, 1/4" NPT	-	1

OIL SPILL KIT INSTALLATION

372-2425

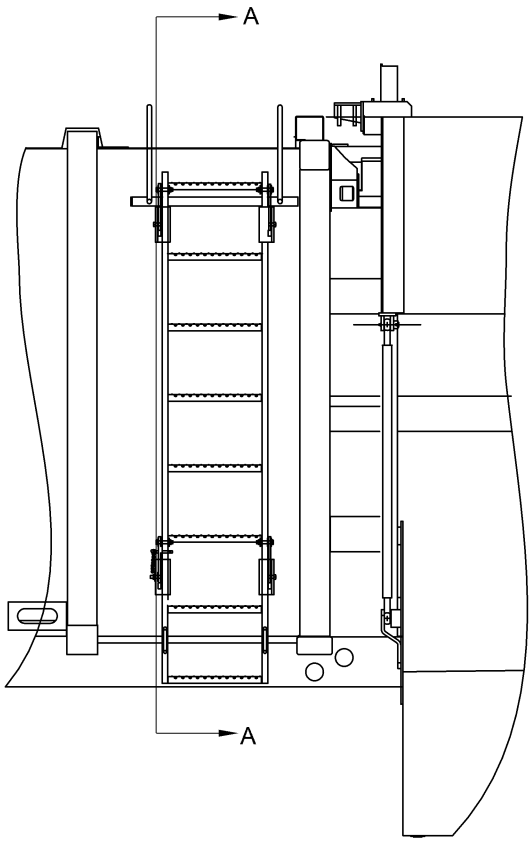
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2425	NSTALLATION, Spill Kit, Oil	-	REF
1	035-3342	GUARD, Strobe/Beacon	-	2
2	211-2650	BRACKET, 1/4" HRS Plate	-	1
3	372-2312	KIT, Spill	-	1
4	108-7583-038	TUBING, Shrink, 3/8”	-	1'
5	047-2390	PIN, Quick Release	-	1

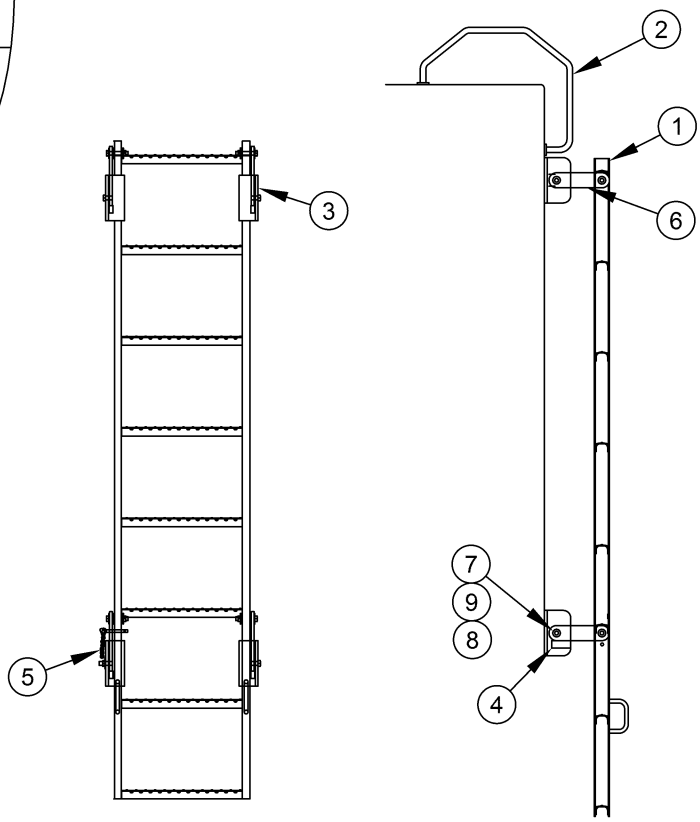
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SIDE LADDER ASSEMBLY

121-2443





VIEW A A

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SIDE LADDER ASSEMBLY

121-2443

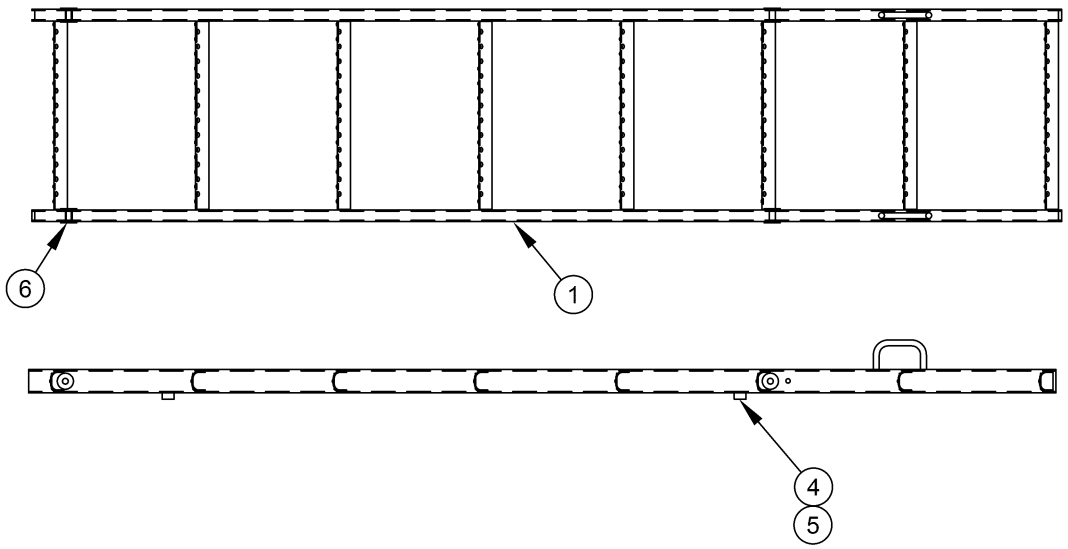
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	121-2443	ASSEMBLY, Ladder, Side	-	REF
1	121-2442	WELDMENT, Ladder	-	1
2	070-1821	ASSEMBLY, Grab, Handle (Item Welded)	-	1
3	311-1982	BRACKET, Pivot, Ladder	-	4
4	311-1983	BRACKET, Stop	-	4
5	048-5385	PIN, Ring, Detent	-	1
6	311-1984	ASSEMBLY, Link, 3/8", Hi-Tension	-	4
7	FS071134	HHCS, 1/2"-13 x 2-1/2”, Gr. 5	-	4
8	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	8
9	FS510700	WASHER, Flat, 1/4”, Std., Plain	-	20
-10	212-1617-006	DECAL, Ladder	-	1

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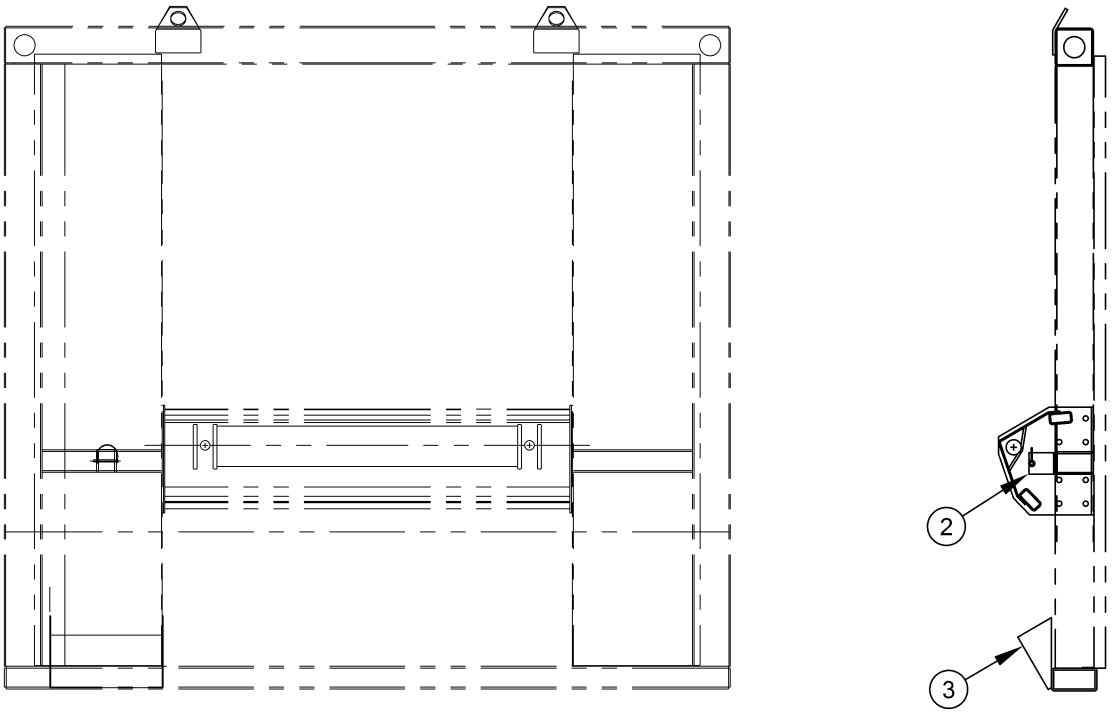
LADDER WELDMENT

121-2442



FRONT HEAD SHOVEL KIT

372-2385



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LADDER WELDMENT

121-2442

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	121-2442	WELDMENT, Ladder	-	REF
1	121-2442-001	LADDER, Side	-	2
4	080-1584-011	BUMPER, Rubber	-	4
5	FS370614	RIVETS, 3/16” x 11/16”	-	4
6	FS510700	WASHER, Flat, 1/4”, Std., Plain	-	8

Note: Item 2, 3, and 7 are Welded.

FRONT HEAD SHOVEL KIT

372-2385

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2385	KIT, Shovel, Front Head	-	REF
2	211-2917	BRACKET, Latch, Upper, 1/4" HRS	-	1
3	311-2272	BRACKET, Shovel Holster	-	1

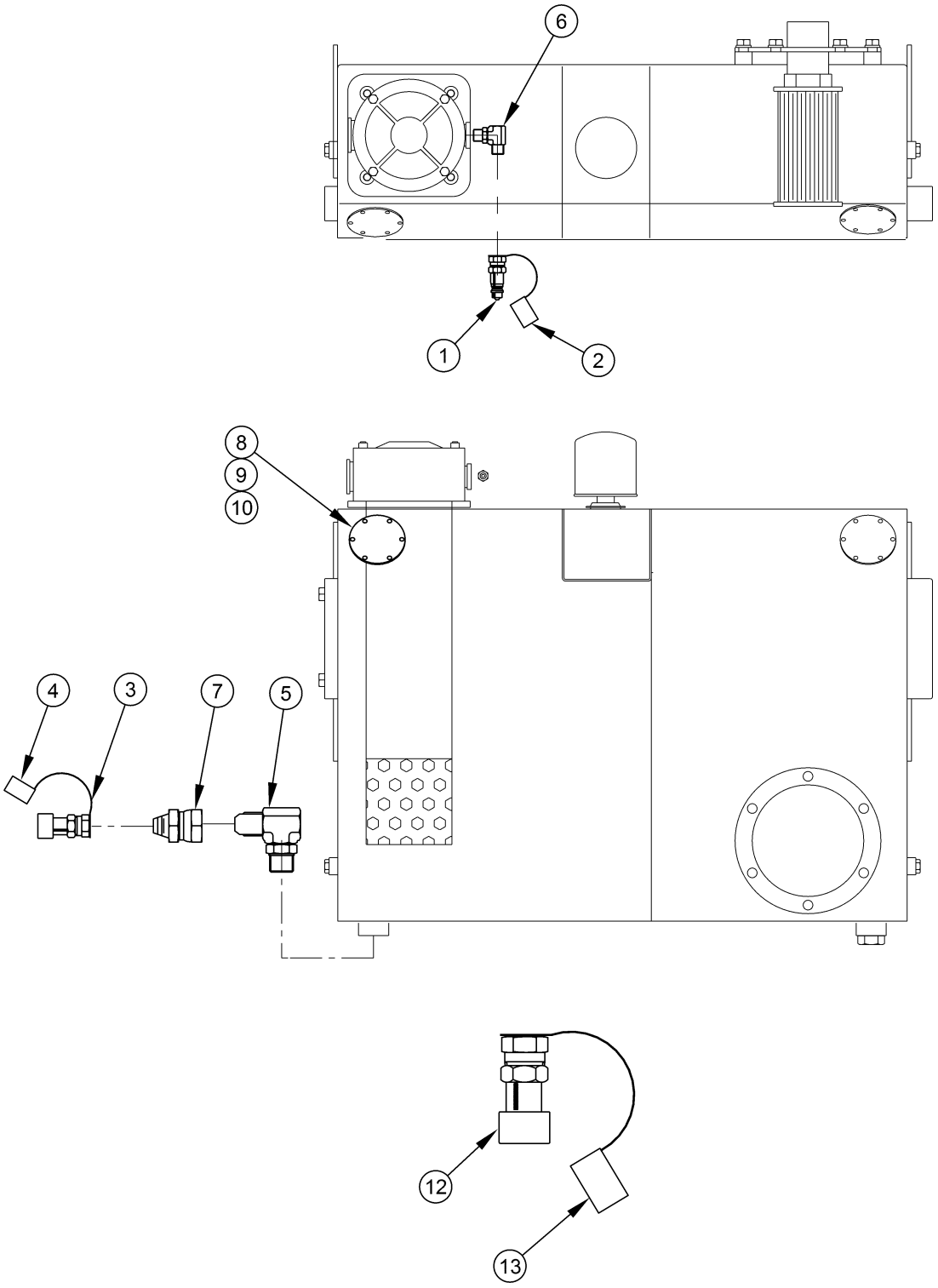
Note: Item 1 is Welded.

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QUICK CONNECT KIT

372-2426



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QUICK CONNECT KIT

372-2426

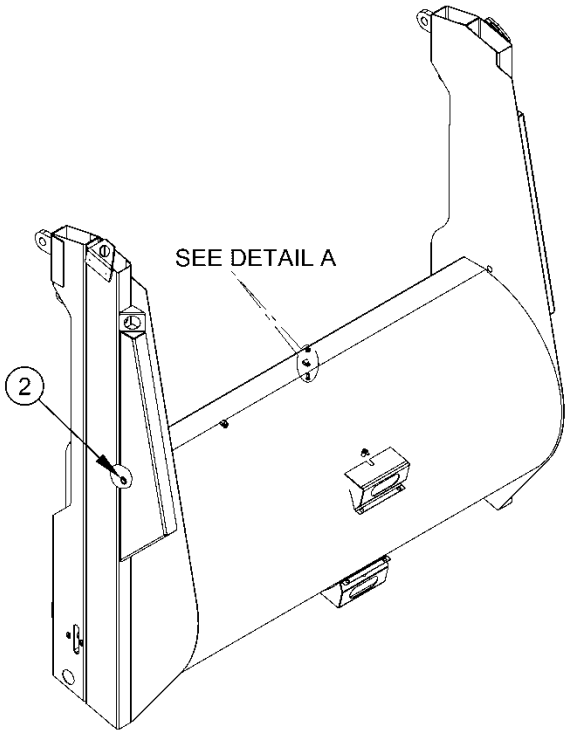
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2426	KIT, Connect, Quick	-	REF
1	045-1387-002	CONNECT, Quick, 3/8” NPT	-	1
2	045-1387-003	CAP, Dust, 3/8” NPT	-	1
3	045-1388-002	CONNECT, Quick, 1”	-	1
4	045-1388-003	CAP, Dust, 1” NPT	-	1
5	054-3340-010	ELBOW, 90°, Male, Tube to Str. Thd., 7/8"-14	-	1
6	054-9317-003	ELBOW, 90°, Pipe 3/8” x 1/4"	-	1
7	054-9521-010	ADAPTER, Pipe, Extension, JIC, 1" x 1-5/16"	-	1
8	060-0402-005	BREATHER, Air, High Flow, Filler Cap, 6"	-	6
9	060-0402-003	GASKET, Hole, Filler Cap	-	1
10	112-8781	COVER, Hole, Filler Cap	-	1
-11	-	NA	-	REF
12	045-1387-001	COUPLING, Quick	-	1
13	045-1387-004	PLUG, Dust, 3/8”	-	1

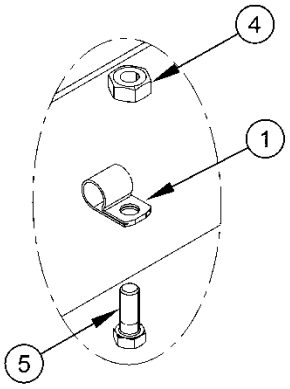
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WASTE MANAGEMENT BRACKET STOP LIGHT KIT

372-2460





DETAIL A.

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WASTE MANAGEMENT BRACKET STOP LIGHT KIT

372-2460

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2460	KIT, Light, Stop, Bracket, Waste Management	-	REF
1	036-1122-008	CLAMP, Tube, 1/2'' x 13/32”	-	4
2	108-1493	GROMMET, Rubber	-	1
4	FS070920	HHCS, 3/8”-16 x 1”, Gr. 5	-	4
5	FS230900	NUT, Lock, 3/8”-16, Gr. 5	-	4

Note: Item 3 is Welded.

SHOVEL INSTALLATION KIT

372-3606

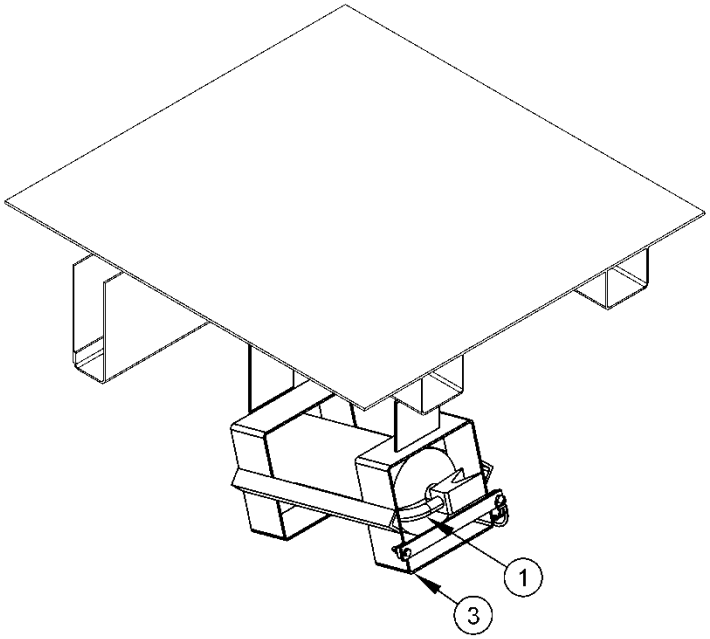
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-3606	KIT, Installation, Shovel	-	REF
-1	044-0343	SHOVEL, Plastic Scoop	-	1

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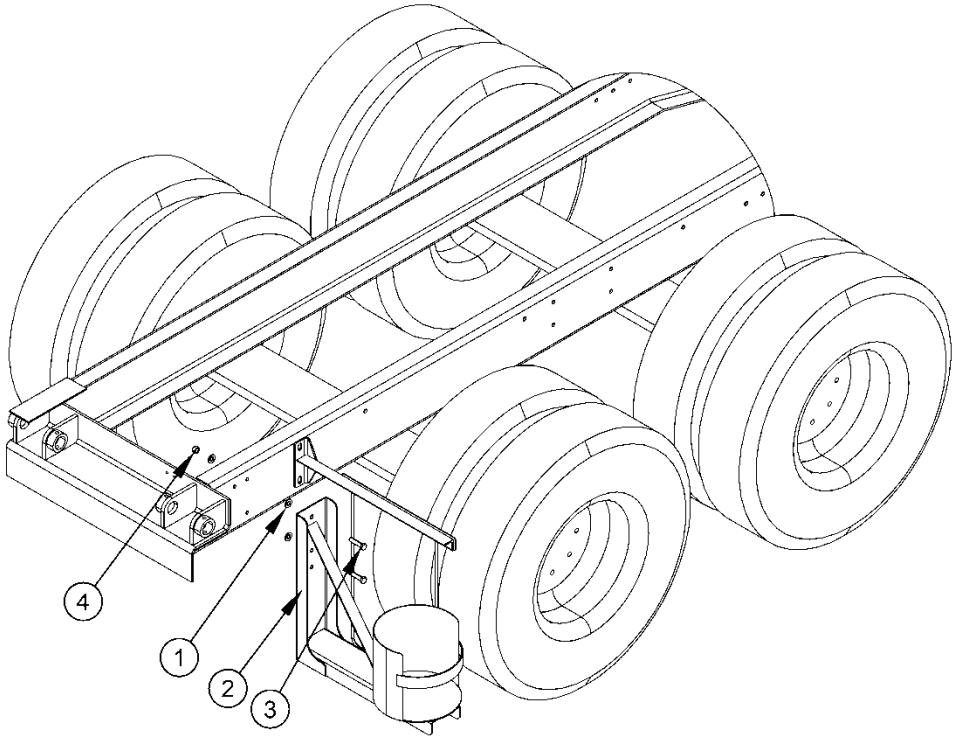
FIRE EXTINGUISHER WITH COVER HANGER INSTALLATION

372-2446



WATER COOLER BRACKET KIT

372-2963



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FIRE EXTINGUISHER WITH COVER HANGER INSTALLATION
372-2446

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2446	INSTALLATION, Hanger, w/Cover, Fire Extinguisher	-	REF
1	161-0345	EXTINGUISHER, Fire, 20#, 7.38" Dia.	-	1
-2	161-0400	COVER, Fire Extinguisher	-	1
3	311-3174	BRACKET, Fire Extinguisher	-	1

WATER COOLER BRACKET KIT
372-2963

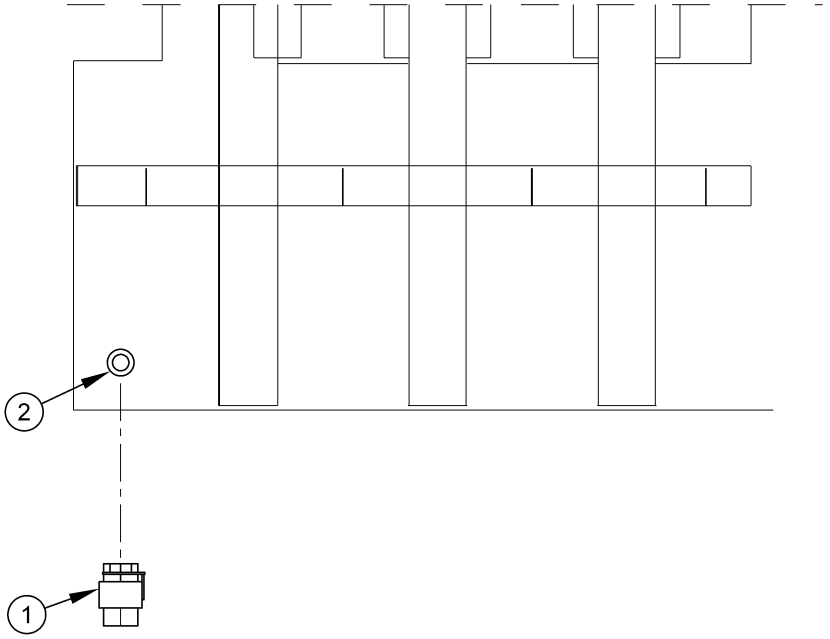
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2963	KIT, Bracket, Cooler, Water	-	REF
1	055-1391-007	WASHER, Steel, Hardened, 5/8" x 0.121” Thickness, Zinc Plated	-	4
2	311-3505	WELDMENT, Bracket, Cooler, Water	-	1
3	FSP101334	HHCS, 5/8"-11" x 2-1/2", Gr. 5, Plated	-	2
4	FSP241300	NUT, Lock, 5/8”-18, Gr. 5, Plated	-	2

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3" BODY DRAIN VALVE KIT

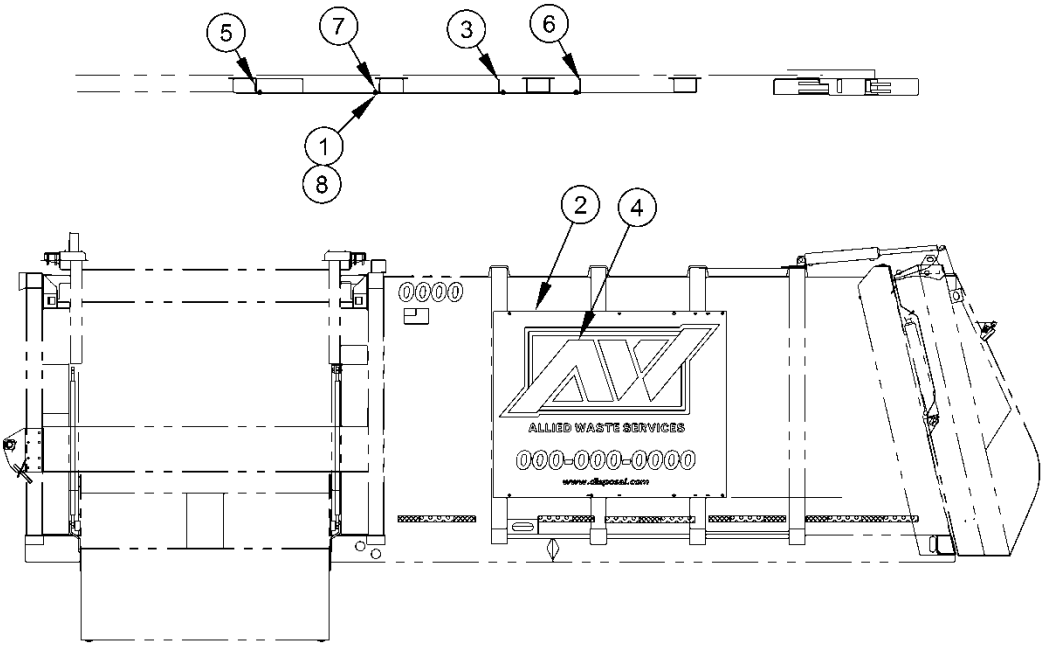
372-2119



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33 AND 38 YARD ALLIED LOGO INSTALLATIONS

372-3331-033, 372-3331-038



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3" BODY DRAIN VALVE KIT

372-2119

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2119	KIT, Valve, Drain, 3” Body	-	REF
1	031-6060	VALVE, 3”	-	1
2	074-1827-011	FLANGE, 3”, Weld-On	-	1

---

33 AND 38 YARD ALLIED LOGO INSTALLATIONS

372-3331-033, 372-3331-038

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-3331-033	INSTALLATION, Logo, Allied, 33 Yd.	A	REF
-	372-3331-038	INSTALLATION, Logo, Allied, 38 Yd.	B	REF
1	047-2380	HHCS, 3/8”-16, Zinc Plated	-	16
2	113-5123-002	PANEL, Side, Allied, 25 Yd.	-	2
3	211-9203	BRACKET, Sign Panel	A	4
-3a	211-9203	BRACKET, Sign Panel	B	8
4	212-2933	KIT, Decal, Waste, Allied (See Pg. 7049)	-	1
5	311-3756	BRACKET, Sign	-	8
7	FS230900	NUT, Lock, 3/8”-16, Gr. 5	-	16
8	FS520900	WASHER, Flat, 3/8” SAE, Plain	B	16

Note: Item 6 is Welded.

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ALLIED WASTE DECAL KIT

212-2933

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	212-2933	KIT, Decal, Waste, Allied	-	REF
-1	212-2933-001	FLAG, American, 5” x 8”	-	2
-2	212-2933-002	LOGO, Side, 34-3/4” x 72-1/2”	-	2
-3	212-2933-003	WEBSITE, Side 2.75” x 27.5”	-	2
-4	212-2933-004	PHONE NUMBER, Side, 6”	-	2
-5	212-2933-005	DEACL, Rear Caution	-	1
-6	212-2933-006	LOGO, Rear, 22-1/4” x 53-1/2”	-	1
-7	212-2933-007	UNIT NUMBER, 6” (4 Digit)	-	2
-8	212-2933-008	KIT, Conspicuity, Red/White	-	70
-9	212-2933-009	KIT, Conspicuity, White	-	3
-10	212-2933-010	UNIT NUMBER, 4” (4 Digit)	-	1
-11	212-2933-011	SQUEEGEE, 1	-	1

STRIPING INSTALLATION KITS

372-3406-001,372-3406-002,372-3406-003,372-3406-004,372-3406-005

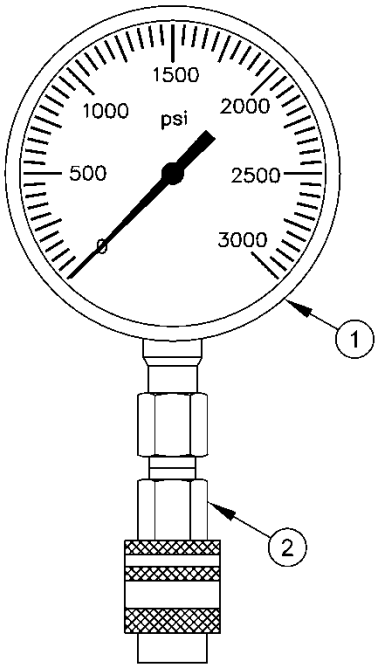
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-3406-001	KIT, Installation, Striping, Mack MR	A	REF
-	372-3406-002	KIT, Installation, Striping, Mack LE	B	REF
-	372-3406-003	KIT, Installation, Striping, Autocar WXLL	C	REF
-	372-3406-004	KIT, Installation, Striping, Autocar WX	D	REF
-	372-3406-005	KIT, Installation, Striping, International 4900	E	REF
-1	212-2937-100	KIT, Striping, Cab, Mack MR	A	1
-1a	212-2937-200	KIT, Striping, Cab, Mack LE	B	1
-1b	212-2937-300	KIT, Striping, Cab, Autocar WXLL	C	1
-1c	212-2937-400	KIT, Striping, Cab, Autocar WX	D	1
-1d	212-2937-500	KIT, Striping, Cab, International 4900	E	1

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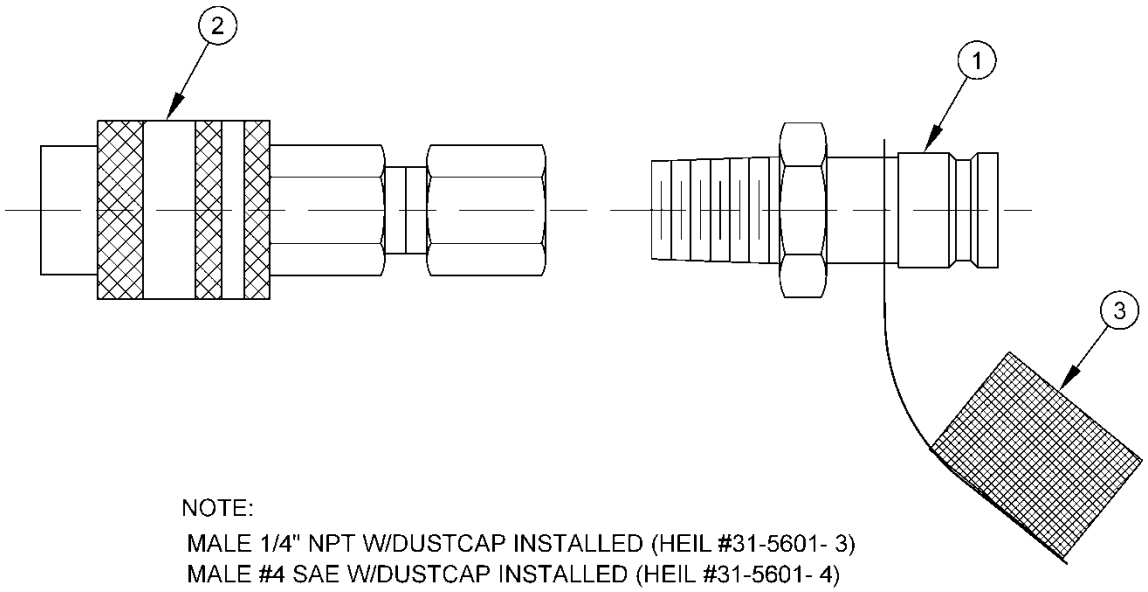
GAUGE ASSEMBLY

067-0997



QUICK DISCONNECT

031-5601



NOTE:
MALE 1/4" NPT W/DUSTCAP INSTALLED (HEIL #31-5601- 3)
MALE #4 SAE W/DUSTCAP INSTALLED (HEIL #31-5601- 4)
MALE #6 SAE W/DUSTCAP INSTALLED (HEIL #31-5601- 5)

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GAUGE ASSEMBLY
067-0997

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	067-0997	ASSEMBLY, Gauge, 0-3000 PSI	-	REF
1	067-0994	GAUGE, 0-3000 PSI	-	1
2	031-5601-002	DISCONNECT, Quick, Female (See Pg. 7051)	-	1

QUICK DISCONNECT
031-5601

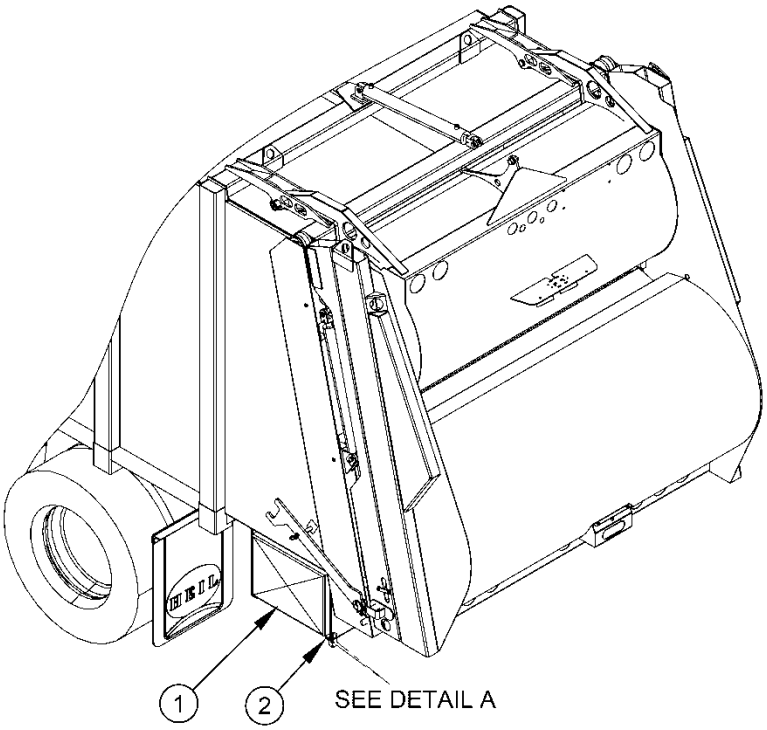
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	031-5601	DISCONNECT, Quick	-	REF
1	031-5601-003	DISCONNECT, Quick, Male, 1/4" NPT	-	1
2	031-5601-004	DISCONNECT, Quick, Male, SAE, #4	-	1
3	031-5601-005	DUST CAP	-	1

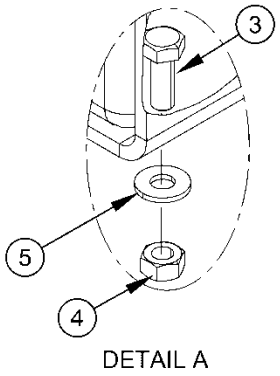
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24" TOOLBOX KIT

372-4581-024





Refer to Hendrickson Technical Bulletin HN® 402/462/522 for installation instructions

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24" TOOLBOX KIT

372-4581-024

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4581-024	KIT, Toolbox, 24"	-	REF
1	151-1336-024	TOOL BOX, Delta, 24” x 18” x 18”	-	1
2	311-5534	BRACKET, Mount, Toolbox	-	2
3	FSP070715	HHCS, 1/4”-20 x 3/4”, Gr. 5, Plated	-	8
4	FSP230700	NUT, Lock, 1/4”-20, Gr. 5, Plated	-	8
5	FSP520700	WASHER, Flat, 1/4” SAE, Plain	-	8

HENDRICKSON SUSPENSION STAB KIT

372-4589

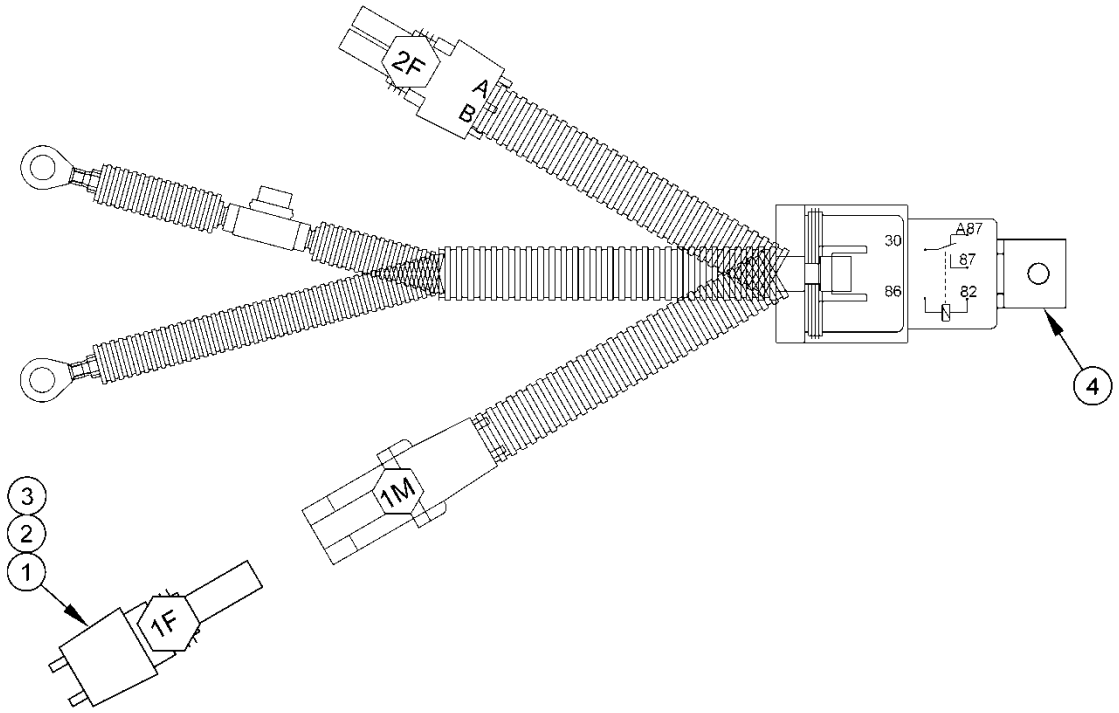
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4589	KIT, Stab, Suspension, Hendrickson	-	REF
-1	047-2580	HEND, 1/2-13 x 3.5"	-	6
-2	311-4333	SHIM, Mount, Spring, Auxiliary, Hendrickson	-	12

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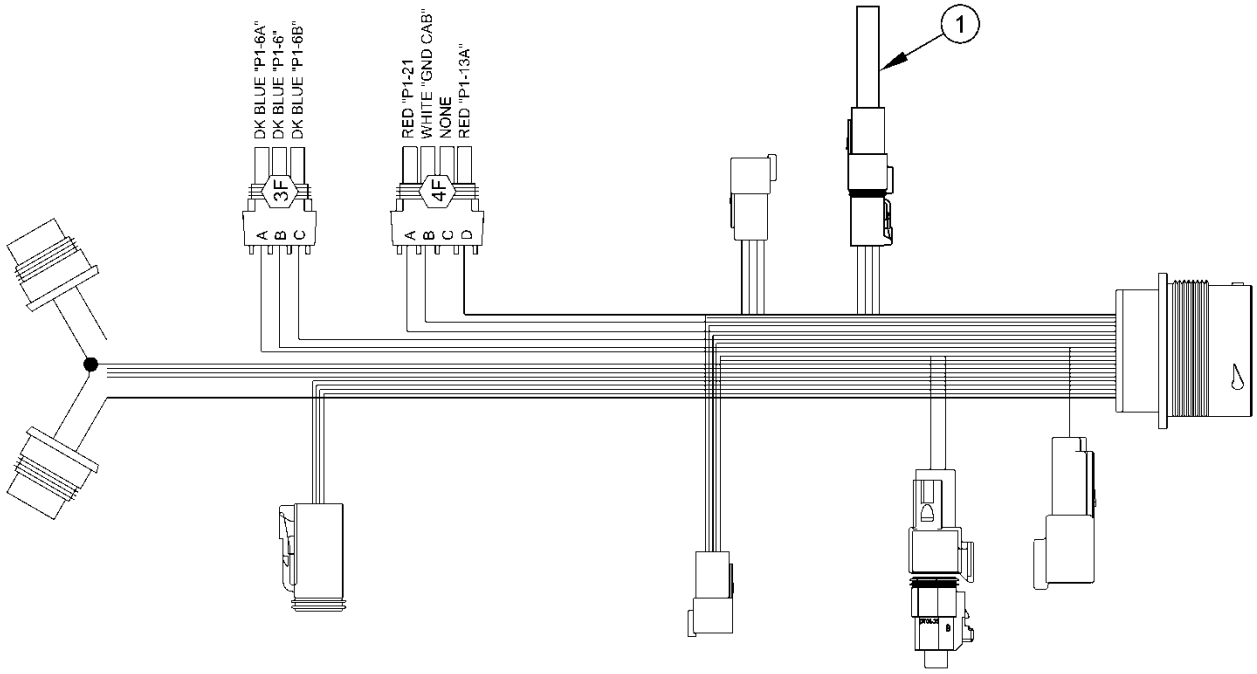
PETERBILT REVERSE SIGNAL KIT

372-5676



TRANSMISSION TEMPERATURE JUMPER KIT

372-5790-001



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PETERBILT REVERSE SIGNAL KIT

372-5676

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5676	KIT, Signal, Reverse, Peterbilt	-	REF
1	108-4827-001	CONNECTOR, Male, 1 Way, Packard	-	1
2	108-4827-121	TERMINAL, Female, 16-14 AWG, Packard	-	1
3	108-4827-132	SEAL, Cable, 16-14 AWG	-	1
4	263-1541	HARNESS, Relay, Reverse Signal (See SM 10)	-	1

TRANSMISSION TEMPERATURE JUMPER KIT

372-5790-001

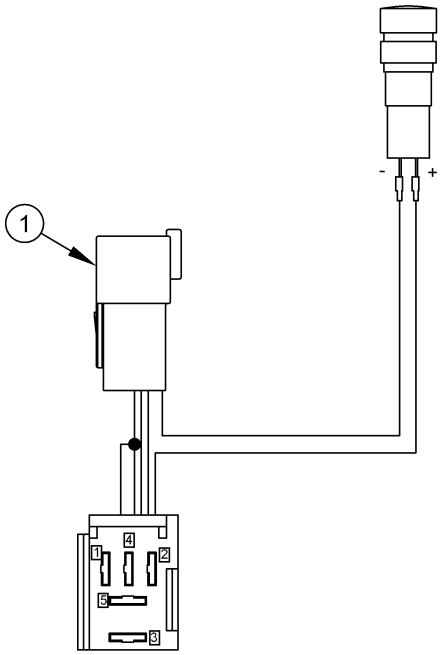
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5790-001	KIT, Jumper, Temperature, Transmission	-	REF
1	263-1565-003	HARNESS, Jumper, Temperature, Transmission (See SM 10)	-	1

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TRANSMISSION TEMPERATURE RELAY KIT

372-5790-002



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TRANSMISSION TEMPERATURE RELAY KIT

372-5790-002

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5790-002	KIT, Relay, Temperature, Transmission	-	REF
1	263-1565-002	HARNESS, Relay, Temperature, Transmission (See SM 10)	-	1

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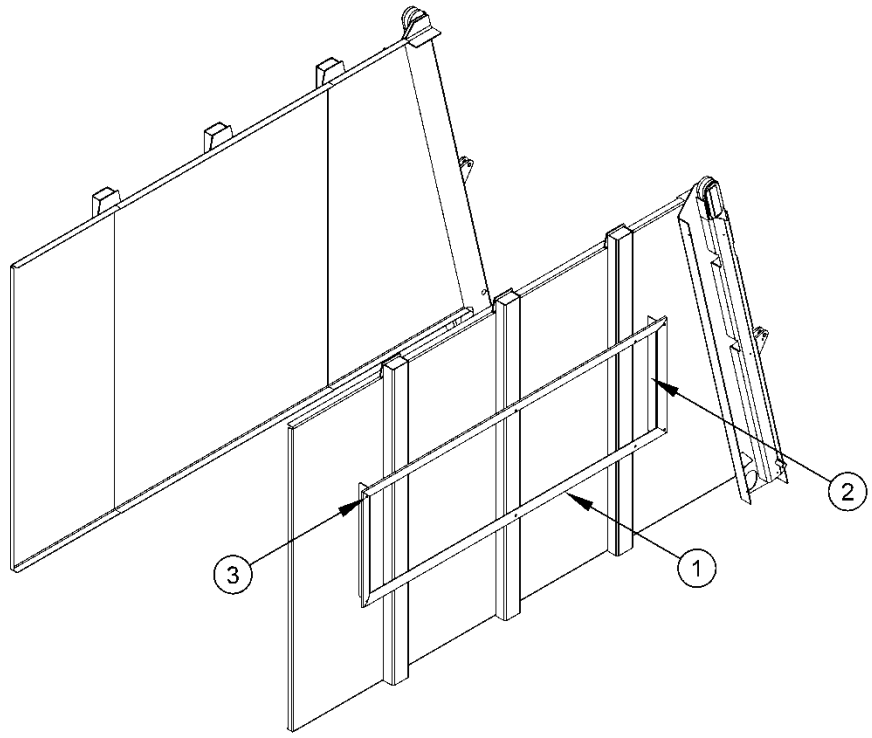
SIGN FRAME KITS

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33 YARD ROADWAY SIGN FRAME KIT

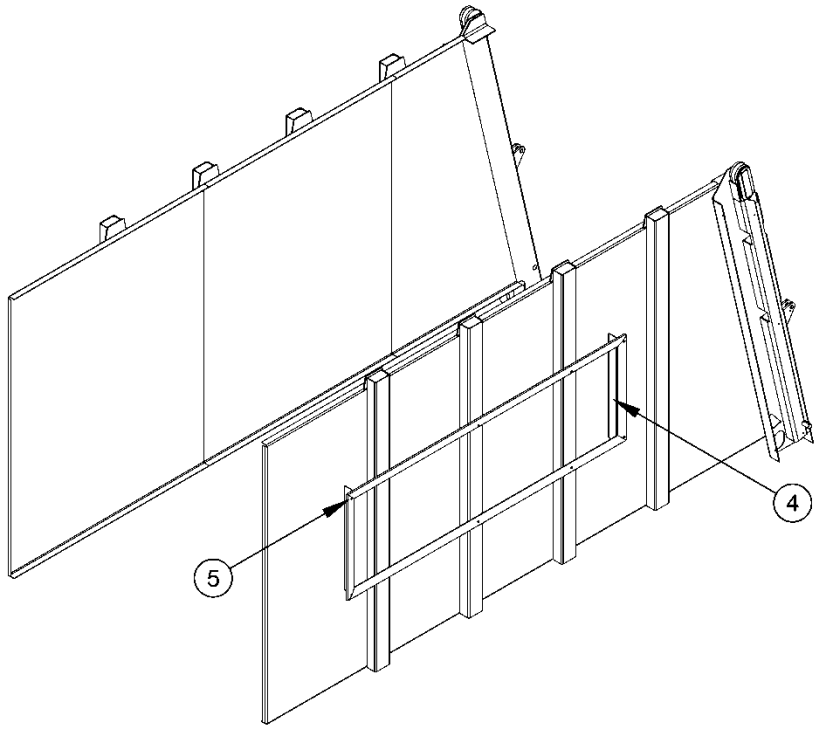
372-4231-033



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38 YARD ROADWAY SIGN FRAME KIT

372-4231-038



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33 YARD ROADWAY SIGN FRAME KIT

372-4231-033

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4231-033	KIT, Sign Frame, Roadway, 33 Yd.	-	REF
1	237-8767	FRAME, Sign, Roadway, 31-1/2" x 95-1/2"	-	2
2	372-4231-001	BRACKET, Sign Frame, 31”	-	4
3	FS370608	RIVET, 3/16” x 5/16”	-	16

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38 YARD ROADWAY SIGN FRAME KIT

372-4231-038

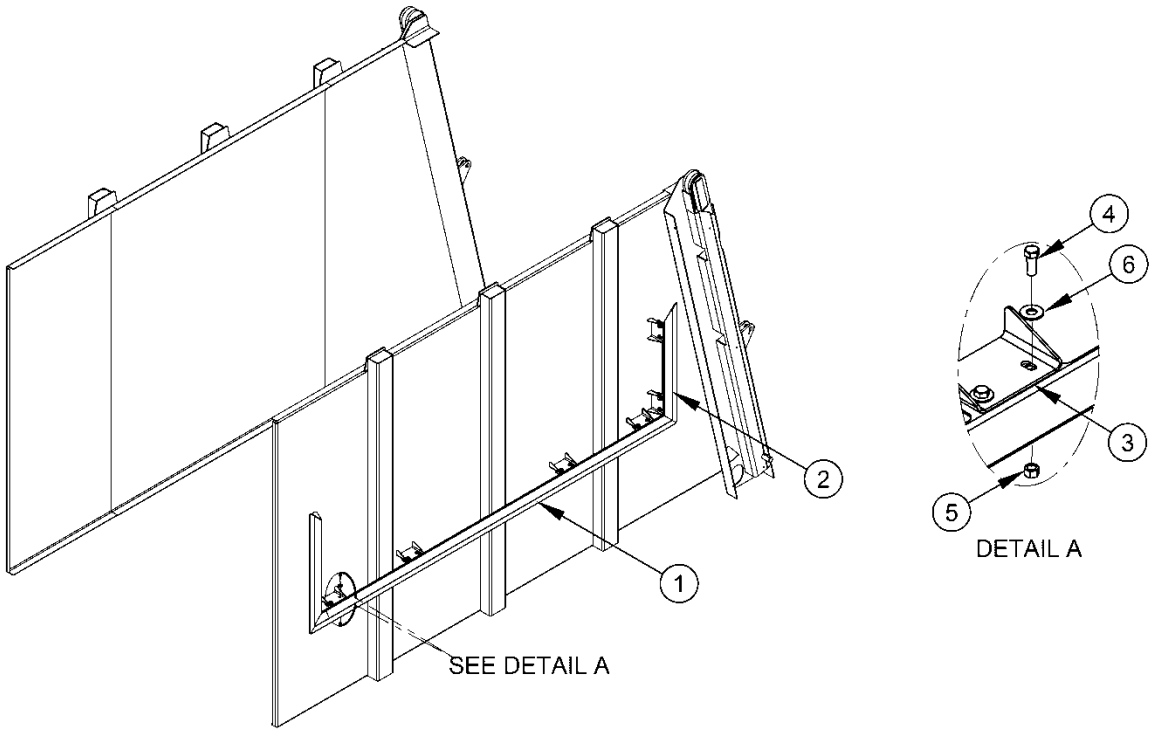
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4231-038	KIT, Sign Frame, Roadway, 38 Yd.	-	REF
-1	112-8833	BODY, Side, SS, 38 Yd.	-	1
-2	112-8834	BODY, Side, CS, 38 Yd.	-	1
-3	237-8767	FRAME, Sign, Roadway, 31-1/2" x 95-1/2"	-	2
4	372-4231-001	BRACKET, Sign Frame, 31”	-	4
5	FS370608	RIVET, 3/16” x 5/16”	-	16

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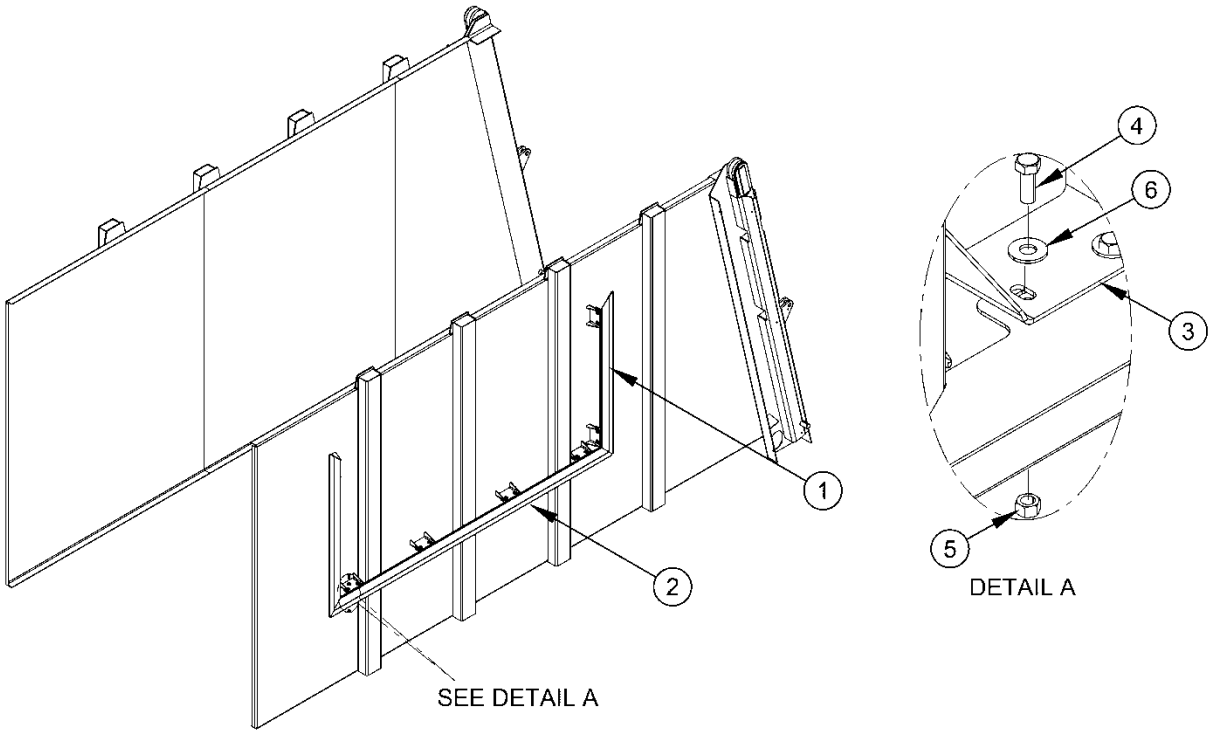
33" X 115" J-CHANNEL SIGN FRAME KIT

372-4337-330



48" X 96" J-CHANNEL SIGN FRAME KIT

372-4337-331



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33" X 115" J-CHANNEL SIGN FRAME KIT

372-4337-330

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4337-330	KIT, Sign Frame, J-Channel, 33" x 115"	-	REF
1	311-3613-001	BRACKET, Sign Frame, 12 Ga., HRS	-	2
2	311-3613-002	BRACKET, Sign Frame, 14 Ga., HRS	-	4
3	311-3614-001	BRACKET, Mount, Sign Frame	-	16
4	FSP070920	HHCS, 3/8”-16 x 1”, Gr. 5, Plated	-	32
5	FSP230900	NUT, Lock, 3/8”-16, Gr. 5, Plated	-	32
6	FSP510900	WASHER, Flat, 3/8", Std., Plain	-	65

48" X 96" J-CHANNEL SIGN FRAME KIT

372-4337-331

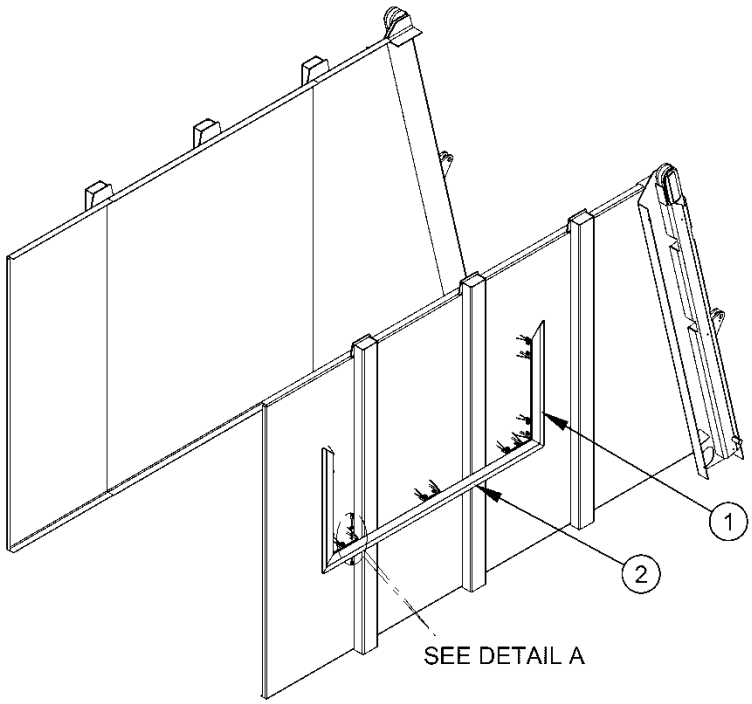
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4337-331	KIT, Sign Frame, J-Channel, 48" x 96"	-	REF
1	311-3613-003	BRACKET, Sign Frame, 47-1/4”	-	4
2	311-3613-008	BRACKET, Sign Frame, 95”	-	2
3	311-3614-001	BRACKET, Mount, Sign Frame	-	16
4	FSP070920	HHCS, 3/8”-16 x 1”, Gr. 5, Plated	-	32
5	FSP230900	NUT, Lock, 3/8”-16, Gr. 5, Plated	-	32
6	FSP510900	WASHER, Flat, 3/8", Std., Plain	-	65

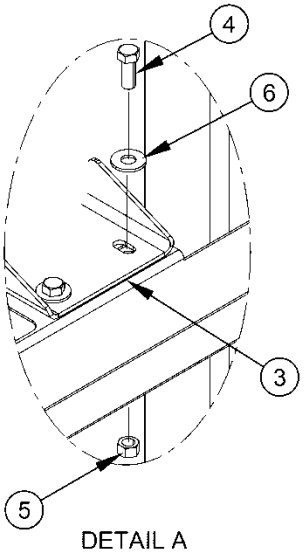
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36" X 72" J-CHANNEL SIGN FRAME KIT

372-4337-332

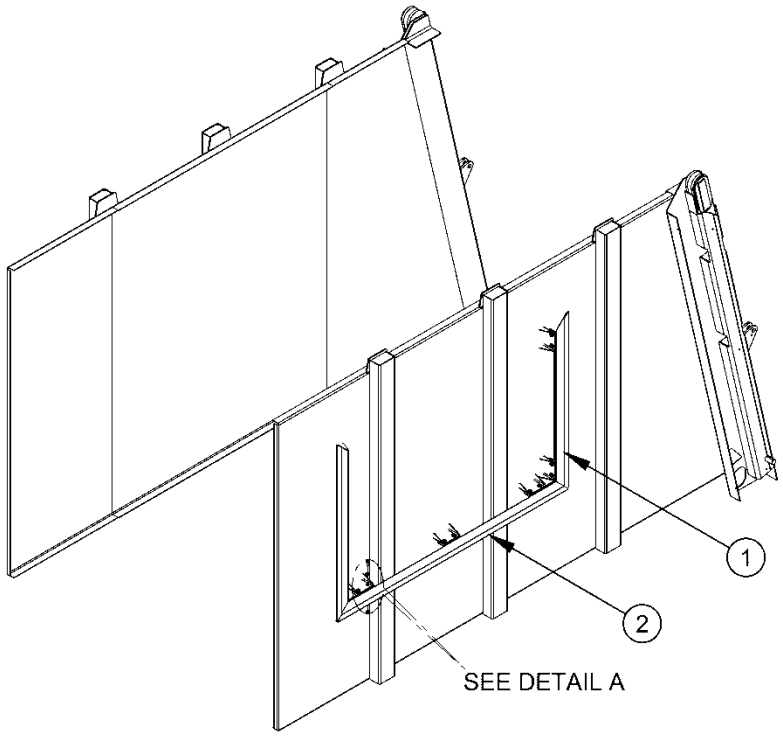


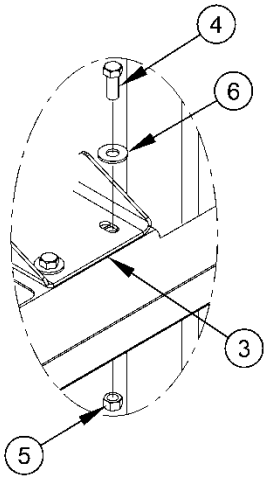


DETAIL A

48" X 72" J-CHANNEL SIGN FRAME KIT

372-4337-333





DETAIL A

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36" X 72" J-CHANNEL SIGN FRAME KIT

372-4337-332

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4337-332	KIT, Sign Frame, J-Channel, 36" x 72"	-	REF
1	311-3613-004	BRACKET, Sign Frame, 71-1/2”	-	2
2	311-3613-007	BRACKET, Sign Frame, 35”	-	4
3	311-3614-001	BRACKET, Mount, Sign Frame	-	14
4	FSP070920	HHCS, 3/8”-16 x 1”, Gr. 5, Plated	-	28
5	FSP230900	NUT, Lock, 3/8”-16, Gr. 5, Plated	-	28
6	FSP510900	WASHER, Flat, 3/8", Std., Plain	-	56

48" X 72" J-CHANNEL SIGN FRAME KIT

372-4337-333

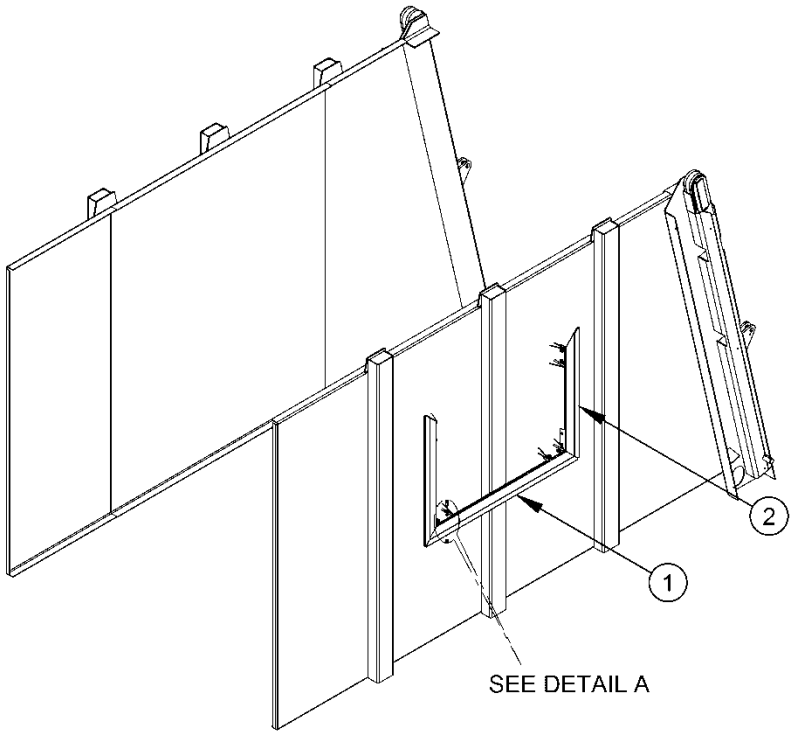
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4337-333	KIT, Sign Frame, J-Channel, 48" x 72"	-	REF
1	311-3613-003	BRACKET, Sign Frame, 47-1/4””	-	4
2	311-3613-004	BRACKET, Sign Frame, 71-1/2”	-	2
3	311-3614-001	BRACKET, Mount, Sign Frame	-	14
4	FSP070920	HHCS, 3/8”-16 x 1”, Gr. 5, Plated	-	28
5	FSP230900	NUT, Lock, 3/8”-16, Gr. 5, Plated	-	28
6	FSP510900	WASHER, Flat, 3/8", Std., Plain	-	56

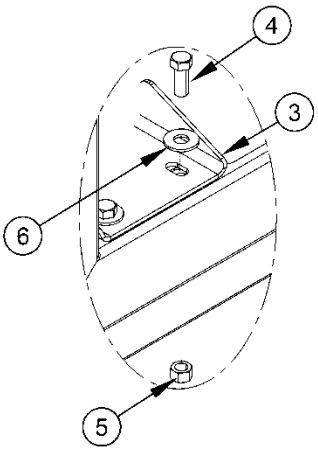
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36" X 48" J-CHANNEL SIGN FRAME KIT

372-4337-334





DETAIL A

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36" X 48" J-CHANNEL SIGN FRAME KIT

372-4337-334

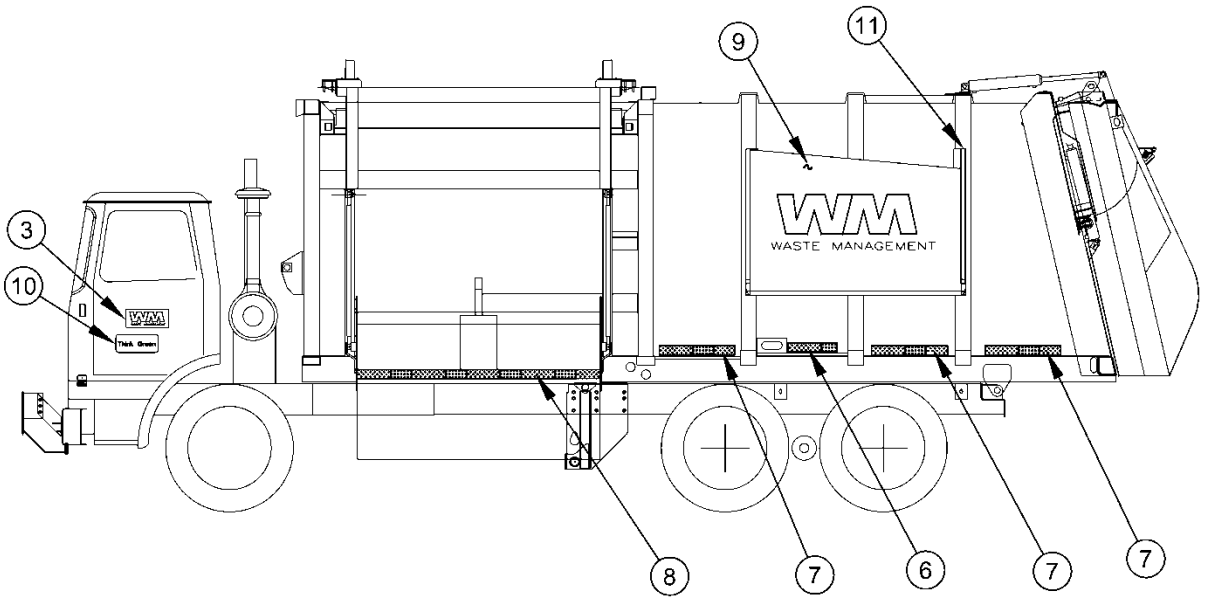
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-4337-334	KIT, Sign Frame, J-Channel, 36" x 48"	-	REF
1	311-3613-003	BRACKET, Sign Frame, 47-1/4”	-	2
2	311-3613-007	BRACKET, Sign Frame, 35”	-	4
3	311-3614-001	BRACKET, Mount, Sign Frame	-	8
4	FSP070920	HHCS, 3/8”-16 x 1”, Gr. 5, Plated	-	16
5	FSP230900	NUT, Lock, 3/8”-16, Gr. 5, Plated	-	16
6	FSP510900	WASHER, Flat, 3/8", Std., Plain	-	32

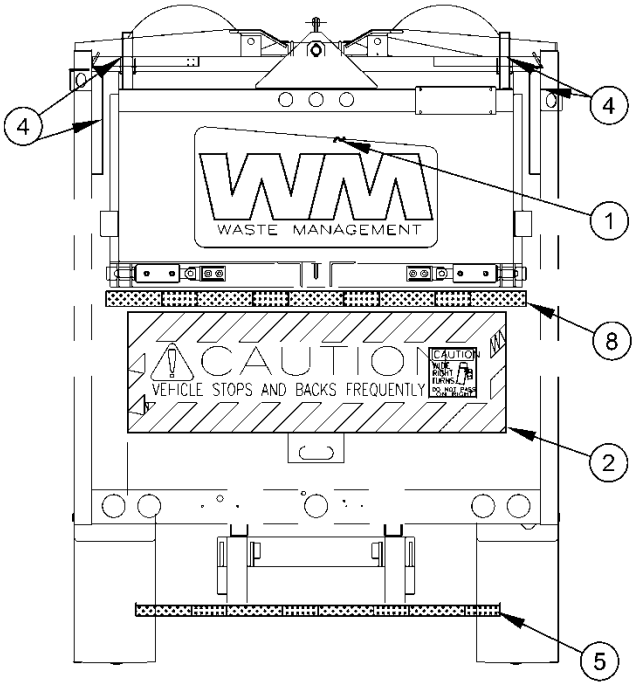
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33 AND 38 YARD WASTE MANAGEMENT DECAL INSTALLATIONS

372-3933, 272-9074





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33 AND 38 YARD WASTE MANAGEMENT DECAL INSTALLATIONS

372-3933, 272-9074

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-3933	INSTALLATION, Decal, Waste Management, 33 Yd.	A	REF
-	272-9074	INSTALLATION, Decal, Waste Management, 38 Yd.	B	REF
1	212-2415	DECAL, Rear, Waste Management	-	1
2	212-2416	DECAL, Rear Caution	-	1
3	212-2417	DECAL, Door, Waste Management	-	2
4	212-2419-021	TAPE, Reflective, White, 2” x 21”	-	4
5	212-2420-072	TAPE, Reflective, Red, 2” x 72”	-	1
6	212-2422-016	TAPE, Reflective White, Red 3" x 16"	-	2
7	212-2422-025	TAPE, Reflective White, Red 3" x 25"	A	6
-7a	212-2422-025	TAPE, Reflective White, Red 3" x 25"	B	8
8	212-2422-080	TAPE, Reflective White, Red 3" x 80"	-	3
9	212-2423	LOGO, Sign, Aluminum, Waste Management, 48” x 72”	-	2
10	212-3017	DECAL, Think green, Waste Management	A	2
-10a	212-2793	DECAL, NASCAR Door, Cab	B	2
11	372-2320	KIT, Sign Frame, Waste Management, 48" x 72" (See Pg. 7071)	-	1

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48" X 72" WASTE MANAGEMENT SIGN FRAME KIT

372-2320

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-2320	KIT, Sign Frame, Waste Management, 48" x 72"	-	.....REF

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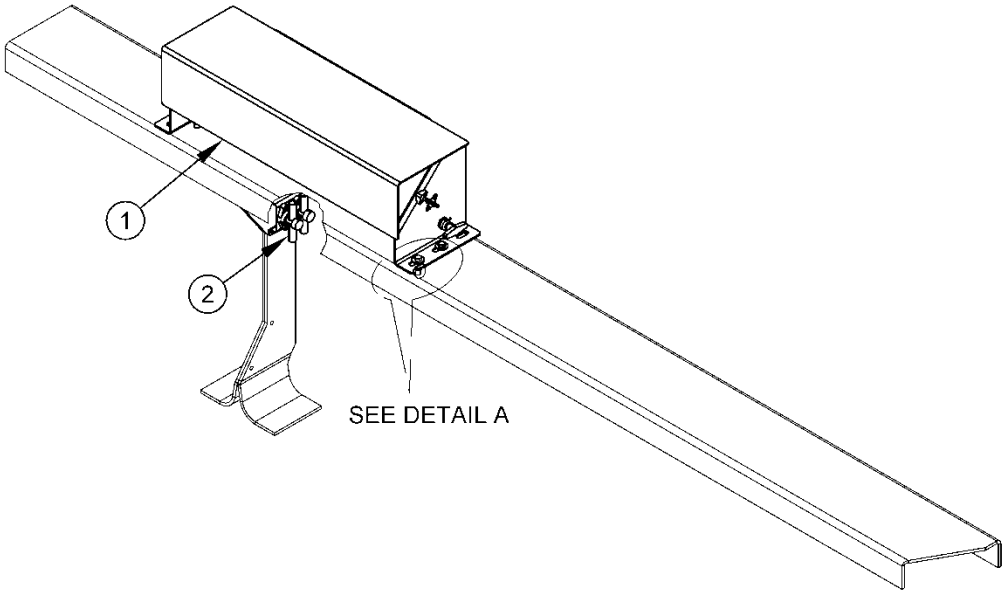
CHASSIS SPECIFIC OPTIONAL KITS

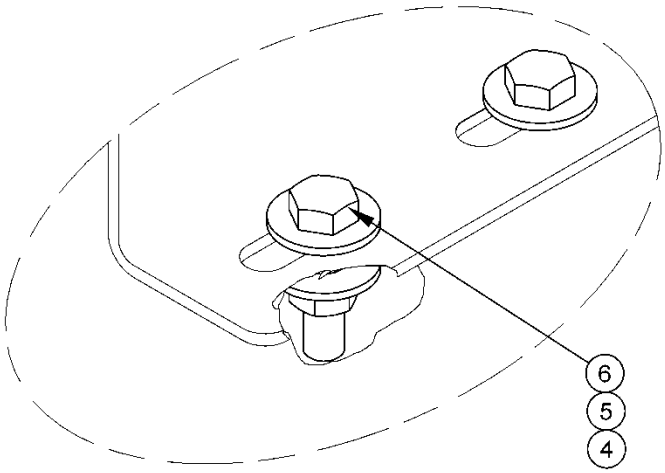
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2-BATTERY BOX MOUNT KIT

372-5140-002





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2-BATTERY BOX MOUNT KIT

372-5140-002

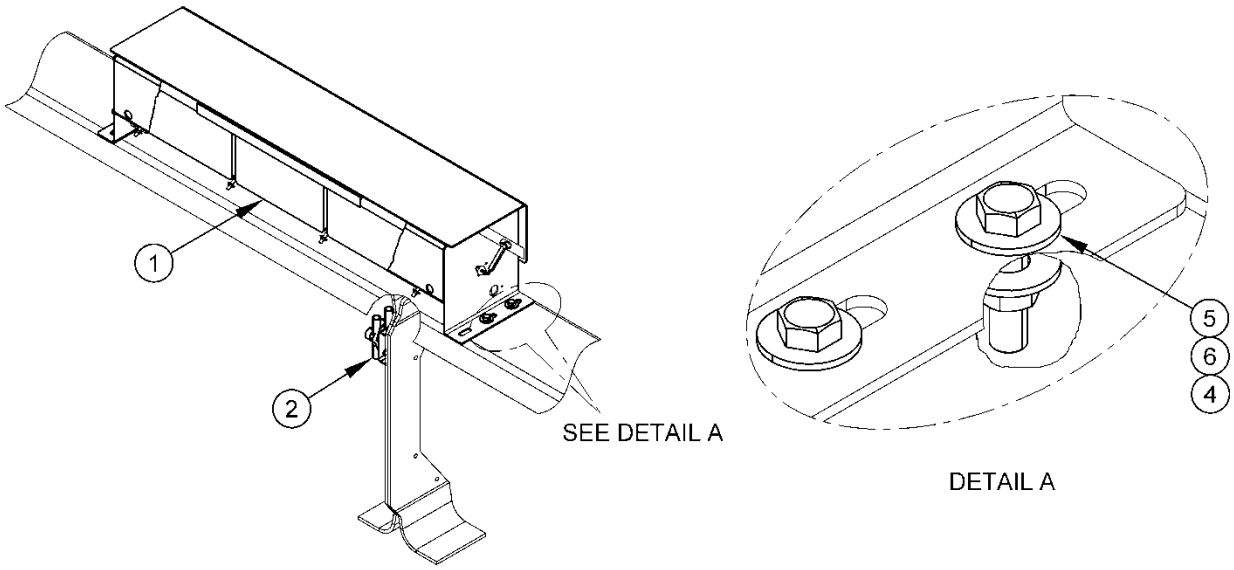
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5140-002	KIT, Mount, 2-Battery Box	-	REF
1	151-4683-002	ASSEMBLY, 2-Battery Box (See Pg. 7079)	-	1
2	372-5141	KIT, Stud, Battery, Isolated (See Pg. 7087)	-	1
-3	701-8038	SCHEMATIC, Battery, Connection (See SM 10)	-	1
4	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	4
5	FSP511100	WASHER, Flat, 1/2" Std., Plain	-	8
6	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	4

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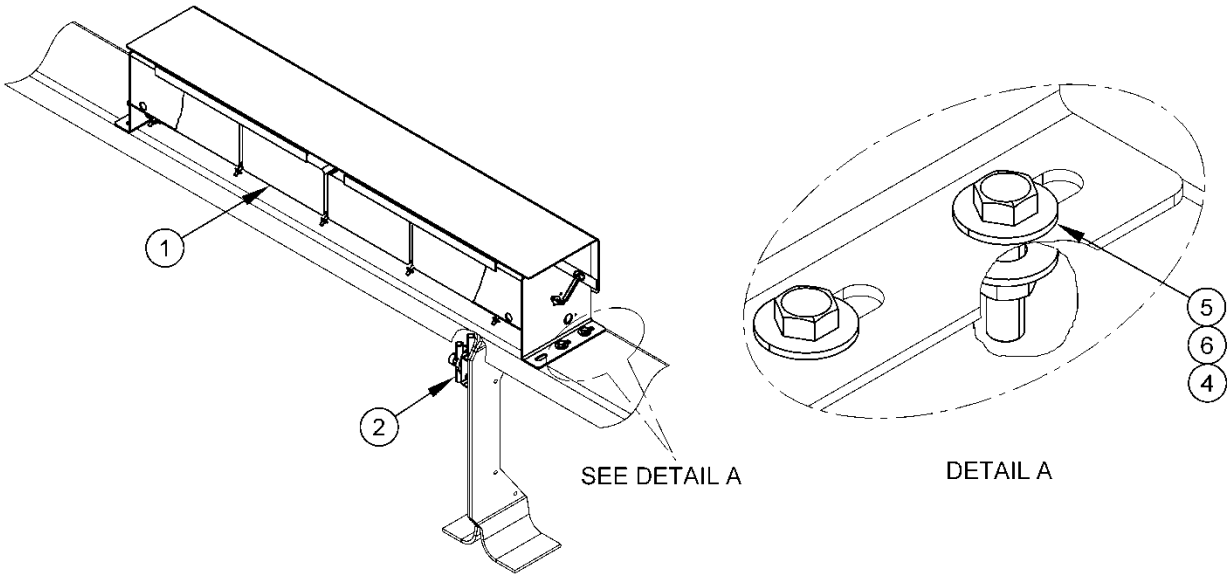
3-BATTERY BOX MOUNT KIT

372-5140-003



4-BATTERY BOX MOUNT KIT

372-5140-004



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3-BATTERY BOX MOUNT KIT

372-5140-003

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5140-003	KIT, Mount, 3-Battery Box	-	REF
1	151-4683-003	ASSEMBLY, 3-Battery Box (See Pg. 7079)	-	1
2	372-5141	KIT, Stud, Battery, Isolated (See Pg. 7087)	-	1
-3	701-8038	SCHEMATIC, Battery, Connection (See SM 10)	-	1
4	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	4
5	FSP511100	WASHER, Flat, 1/2" Std., Plain	-	8
6	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	4

4-BATTERY BOX MOUNT KIT

372-5140-004

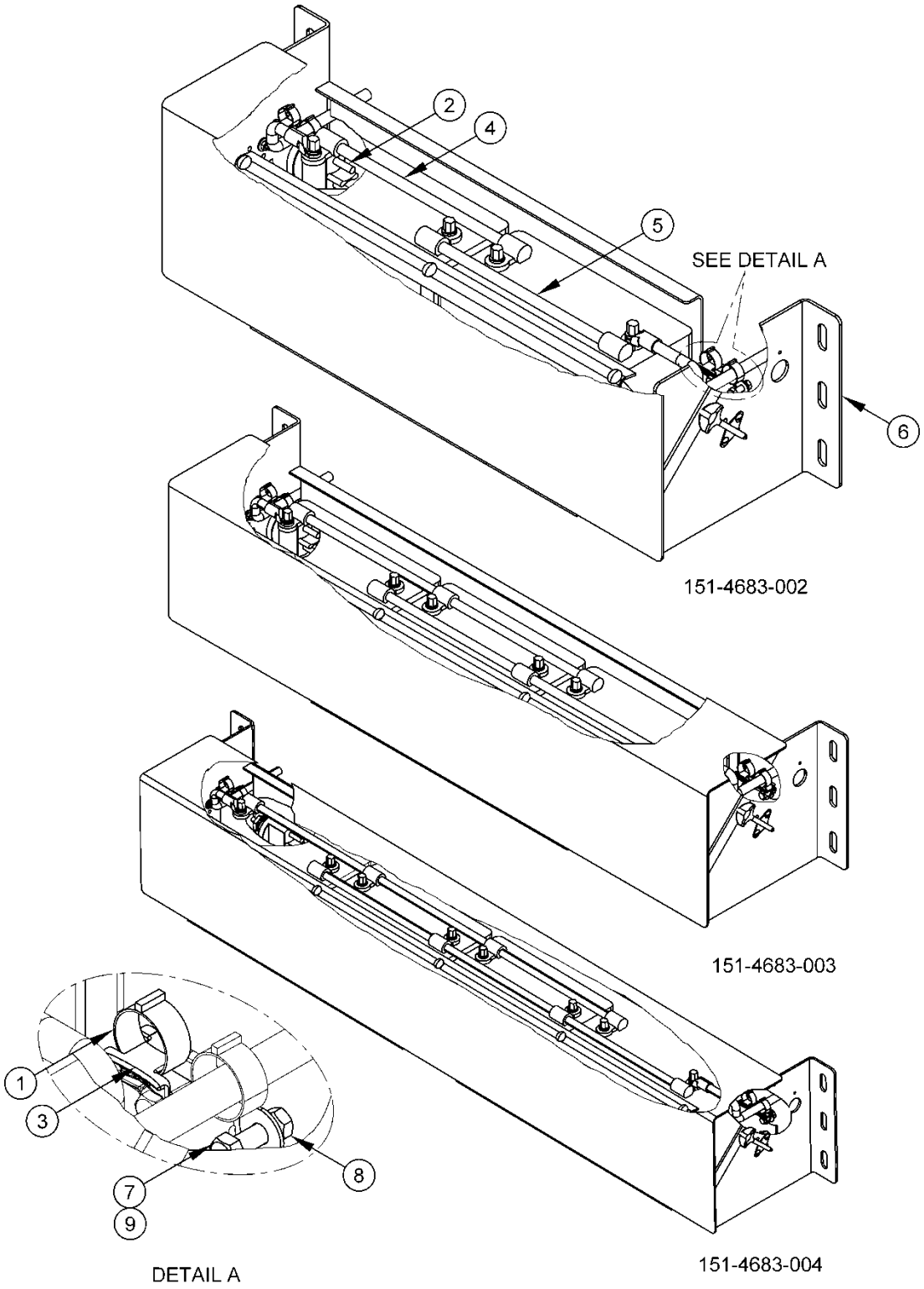
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5140-004	KIT, Mount, 4-Battery Box	-	REF
1	151-4683-004	ASSEMBLY, 4-Battery Box (See Pg. 7079)	-	1
2	372-5141	KIT, Stud, Battery, Isolated (See Pg. 7087)	-	1
-3	701-8038	SCHEMATIC, Battery, Connection (See SM 10)	-	1
4	FSP231100	NUT, Lock, 1/2”-13, Gr. 5, Plated	-	4
5	FSP511100	WASHER, Flat, 1/2" Std., Plain	-	8
6	FSP071130	HHCS, 1/2”-13 x 2”, Gr. 5, Plated	-	4

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BATTERY BOX ASSEMBLIES

151-4683-002, 151-4683-003, 151-4683-004



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BATTERY BOX ASSEMBLIES

151-4683-002, 151-4683-003, 151-4683-004

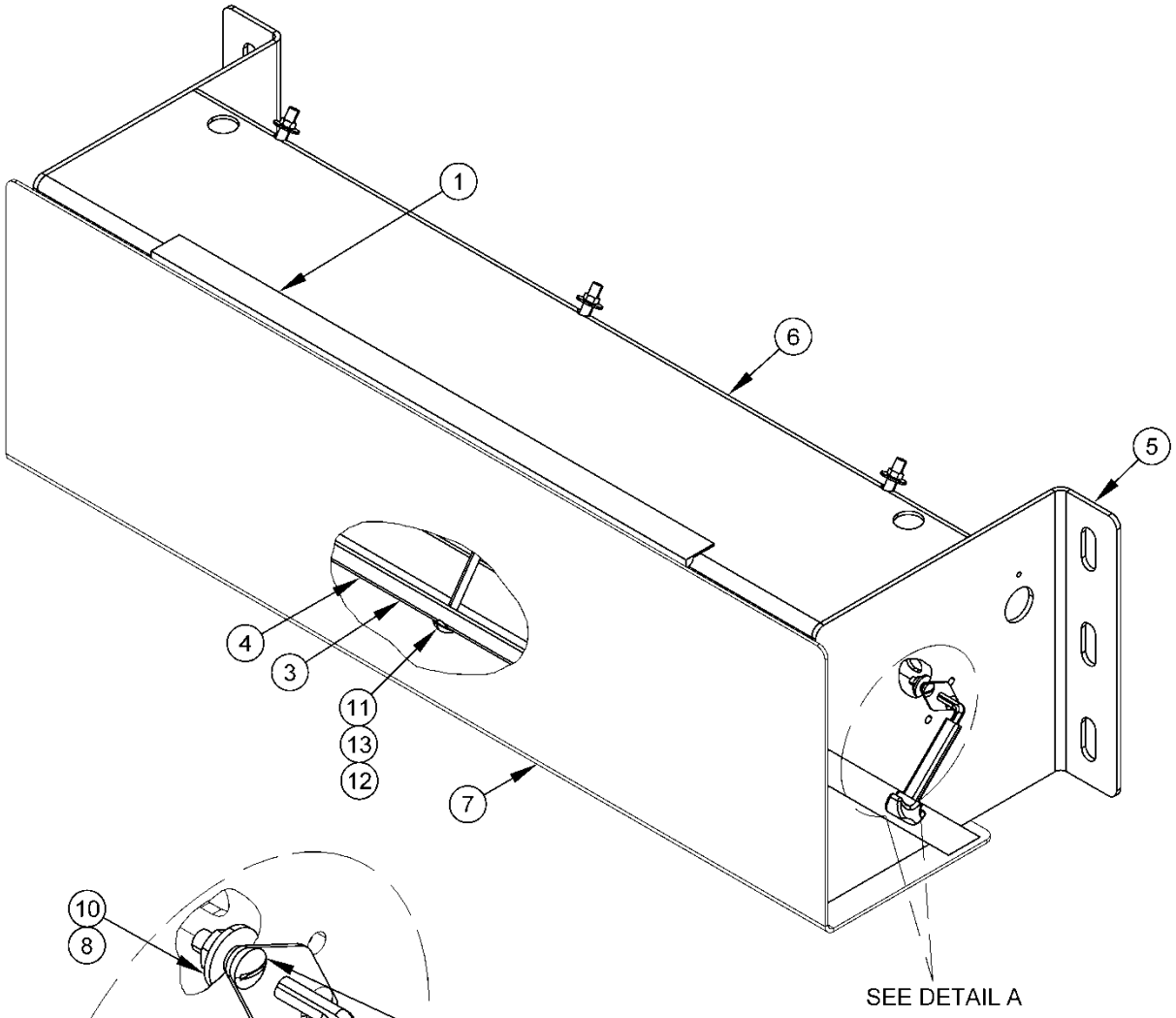
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	151-4683-002	ASSEMBLY, 2-Battery Box	A	REF
-	151-4683-003	ASSEMBLY, 3-Battery Box	B	REF
-	151-4683-004	ASSEMBLY, 4-Battery Box	C	REF
1	036-1925	STRAP, Tie, Heavy Duty, 250 Lb.	-	4
2	108-8123	DISCONNECT, Battery	-	1
3	108-8412	MOUNT, Saddle, Tie Strap	-	4
4	108-8413-102	CABLE, Battery, Positive	A	1
-4a	108-8413-103	CABLE, Battery, Positive	B	1
-4b	108-8413-104	CABLE, Battery, Positive	C	1
5	108-8413-202	CABLE, Battery, Negative	A	1
-5a	108-8413-203	CABLE, Battery, Negative	B	1
-5b	108-8413-204	CABLE, Battery, Negative	C	1
6	151-4682-002	WELDMENT, 2-Battery Box (See Pg. 7081)	A	1
-6a	151-4682-003	WELDMENT, 3-Battery Box (See Pg. 7083)	B	1
-6b	151-4682-004	WELDMENT, 4-Battery Box (See Pg. 7085)	C	1
7	FSP070820	HHCS, 5/16”-18 x 1”, Gr. 5, Plated	-	4
8	FSP230800	NUT, Lock, 5/16”-18, Gr. 5, Plated	-	4
9	FSP520800	WASHER, Flat, 5/16”, SAE, Plain	-	4

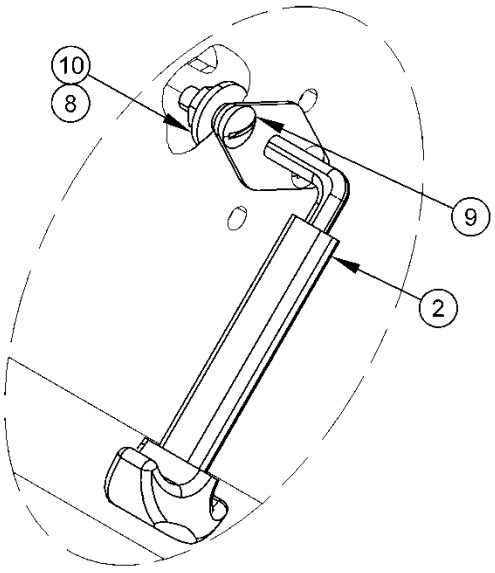
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2-BATTERY BOX WELDMENT

151-4682-002





DETAIL A

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2-BATTERY BOX WELDMENT

151-4682-002

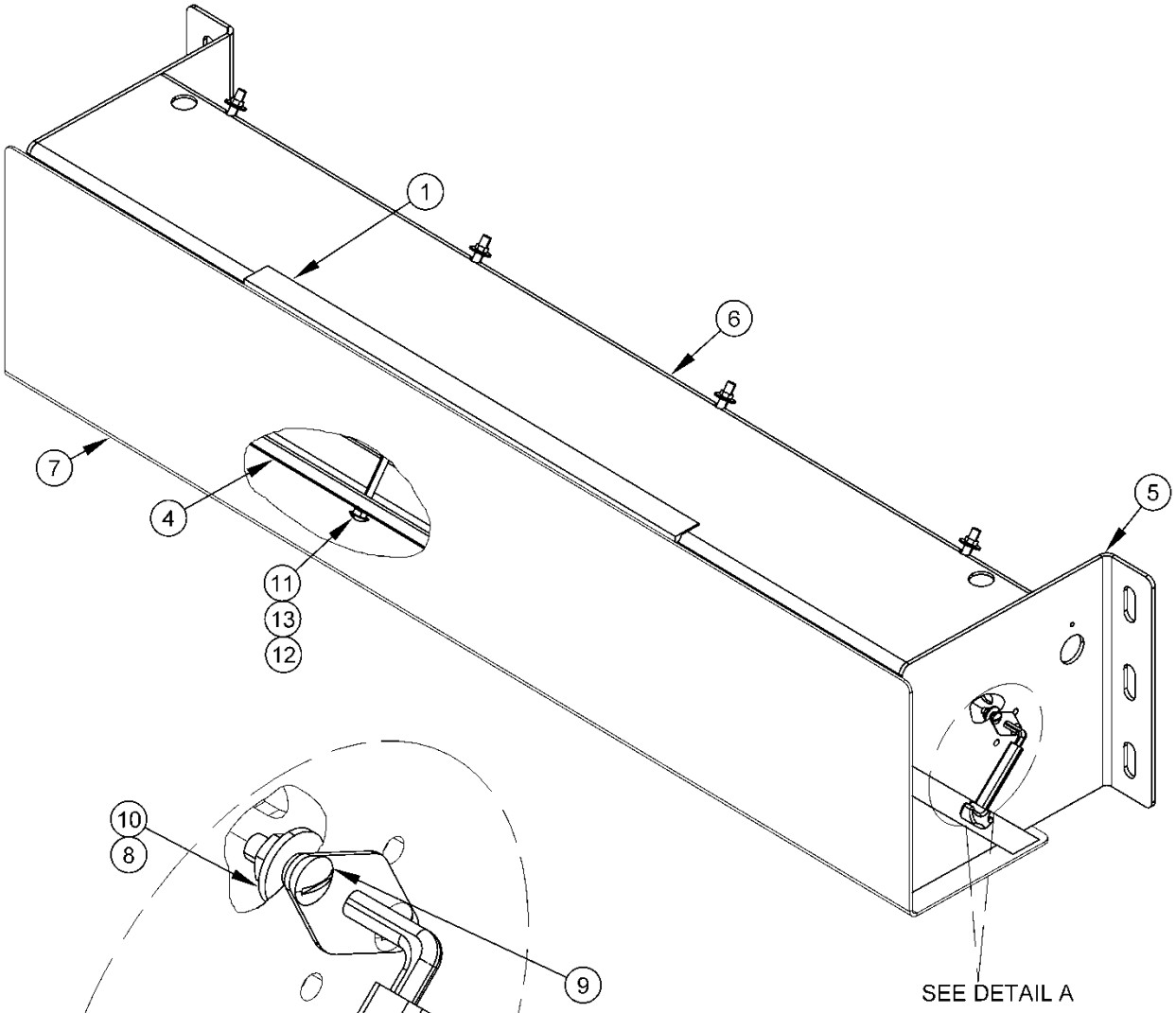
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	151-4682-002	WELDMENT, 2-Battery Box	-	REF
1	005-4115	HINGE, Battery Box	-	1
2	053-2016	LATCH, Battery Box	-	2
3	112-9955	ANGLE, Battery, Hold Down	-	1
4	112-9957	COVER, Brace, Battery Box	-	2
5	113-2731	SHEET, Battery Box, Side	-	2
6	113-6410-002	BASE, Battery Box	-	1
7	113-6411-002	COVER, Battery Box	-	1
8	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	4
9	FS410715	SCREW, 1/4” x 3/4”	-	4
10	FS510700	WASHER, Flat, 1/4”, Std., Plain	-	4
11	FSP020899	BOLT, Carriage, 5/16” x 12, Plated	-	3
12	FSP230800	NUT, Lock, 5/16”-18, Gr. 5, Plated	-	3
13	FSP520800	WASHER, Flat, 5/16”, SAE, Plain	-	3

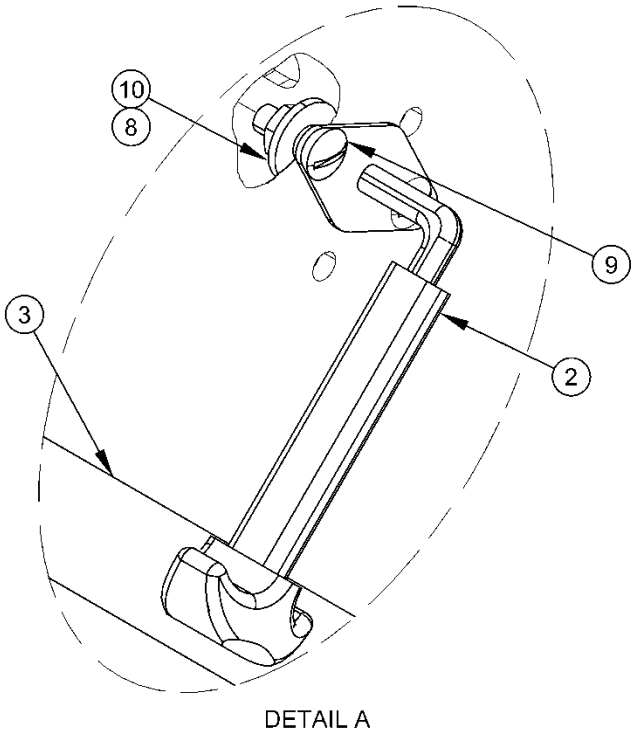
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3-BATTERY BOX WELDMENT

151-4682-003





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3-BATTERY BOX WELDMENT

151-4682-003

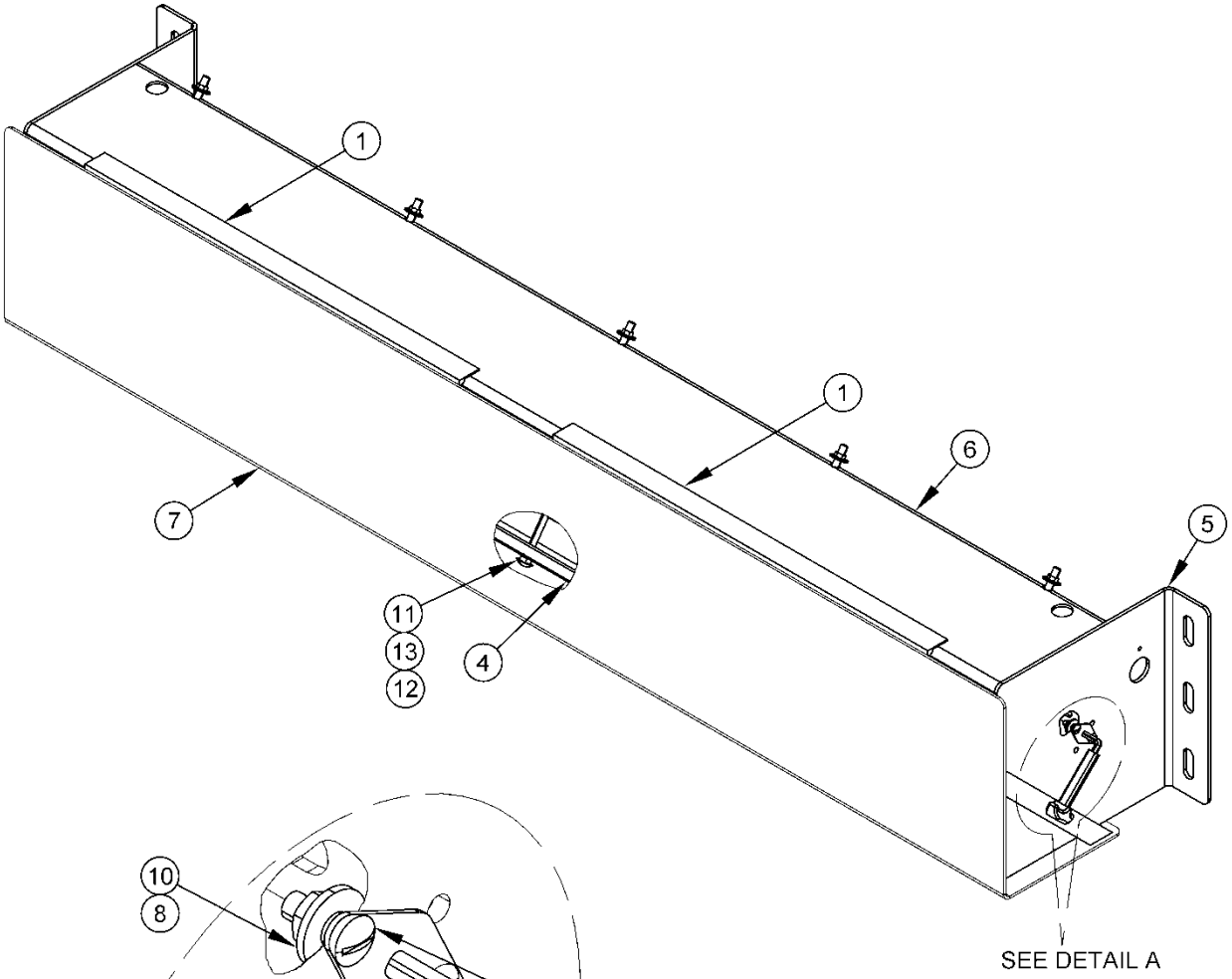
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	151-4682-003	WELDMENT, 3-Battery Box	-	REF
1	005-4115	HINGE, Battery Box	-	1
2	053-2016	LATCH, Battery Box	-	2
3	112-9957	COVER, Brace, Battery Box	-	2
4	112-9959	ANGLE, Battery, Hold Down	-	1
5	113-2731	SHEET, Battery Box, Side	-	2
6	113-6410-003	BASE, Battery Box	-	1
7	113-6411-003	COVER, Battery Box	-	1
8	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	4
9	FS410715	SCREW, 1/4” x 3/4”	-	4
10	FS510700	WASHER, Flat, 1/4”, Std., Plain	-	4
11	FSP020899	BOLT, Carriage, 5/16” x 12, Plated	-	4
12	FSP230800	NUT, Lock, 5/16”-18, Gr. 5, Plated	-	4
13	FSP520800	WASHER, Flat, 5/16”, SAE, Plain	-	4

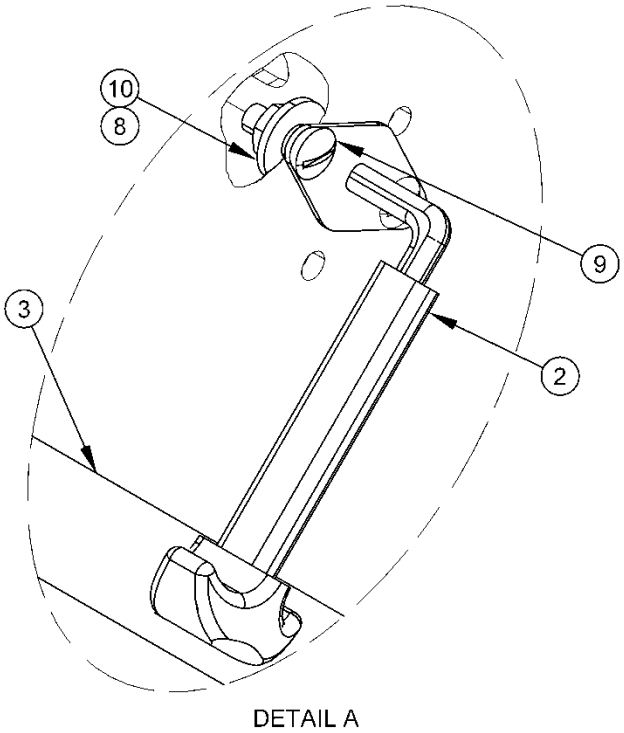
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4-BATTERY BOX WELDMENT

151-4682-004





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4-BATTERY BOX WELDMENT

151-4682-004

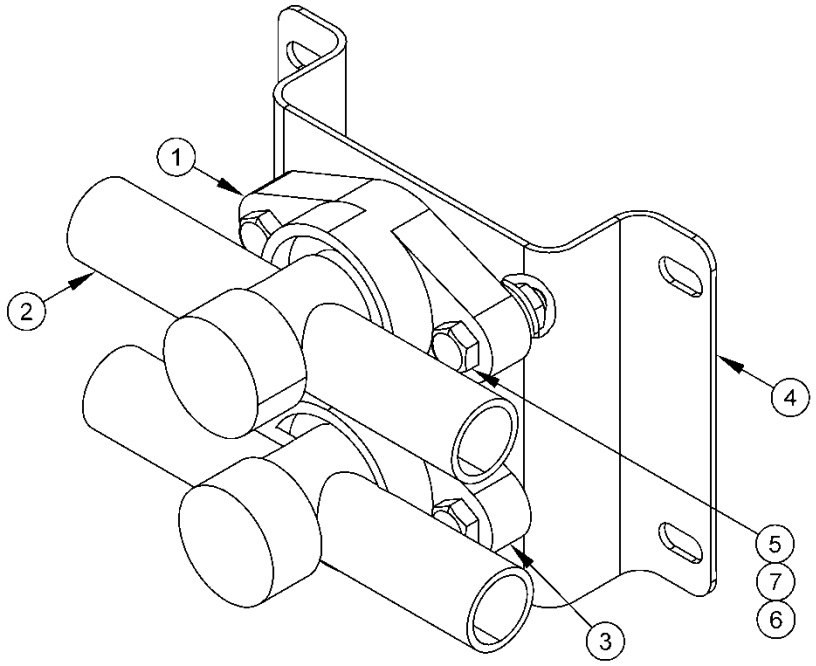
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	151-4682-004	WELDMENT, 4-Battery Box	-	REF
1	005-4115	HINGE, Battery Box	-	2
2	053-2016	LATCH, Battery Box	-	2
3	112-9957	COVER, Brace, Battery Box	-	2
4	112-9962	ANGLE, Battery, Hold Down	-	1
5	113-2731	SHEET, Side, Battery Box	-	2
6	113-6410-004	BASE, Battery Box	-	1
7	113-6411-004	COVER, Battery Box	-	1
8	FS230700	NUT, Lock, 1/4”-20, Gr. 5	-	4
9	FS410715	SCREW, 1/4” x 3/4”	-	4
10	FS510700	WASHER, Flat, 1/4”, Std., Plain	-	4
11	FSP020899	BOLT, Carriage, 5/16” x 12, Plated	-	5
12	FSP230800	NUT, Lock, 5/16”-18, Gr. 5, Plated	-	5
13	FSP520800	WASHER, Flat, 5/16”, SAE, Plain	-	5

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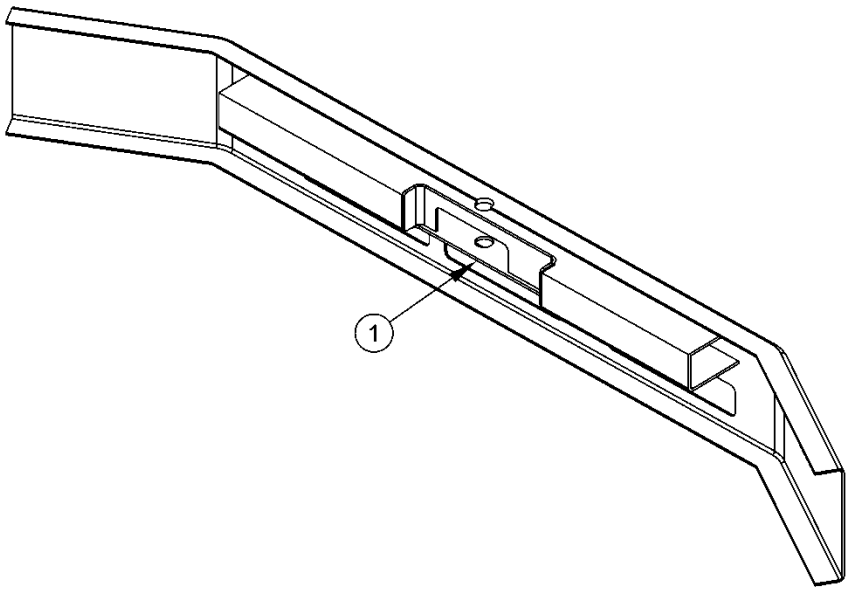
ISOLATED BATTERY STUD KIT

372-5141



MACK MRU TANDEM PUMP BUMPER MODIFICATION KIT

372-5952



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ISOLATED BATTERY STUD KIT

372-5141

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5141	KIT, Stud, Battery, Isolated	-	REF
1	108-8414-001	STUD, Battery Isolated, Red	-	1
2	108-8414-002	COVER, Stud, Battery, Isolated	-	2
3	108-8414-003	STUD, Battery, Isolated, Black	-	1
4	311-4572	BRACKET, Battery, Studs, Mtg.	-	1
5	FSP070720	HHCS, 1/4''-20 x 1”, Gr. 5, Plated	-	4
6	FSP230700	NUT, Lock, 1/4”-20, Gr. 5, Plated	-	4
7	FSP510700	WASHER, Flat, 1/4" Std., Plain	-	4

MACK MRU TANDEM PUMP BUMPER MODIFICATION KIT

372-5952

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-5952	KIT, Bumper Modification, Tandem Pump, Mack MRU	-	REF
1	113-6553	ENCLOSURE, Tow Hook	-	1

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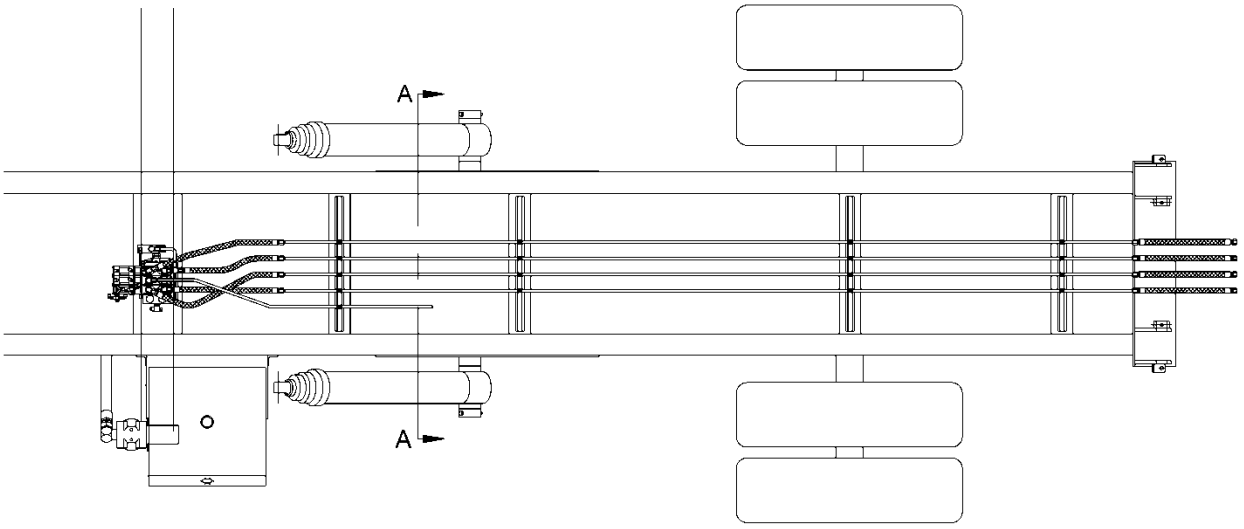
BUCKET KITS

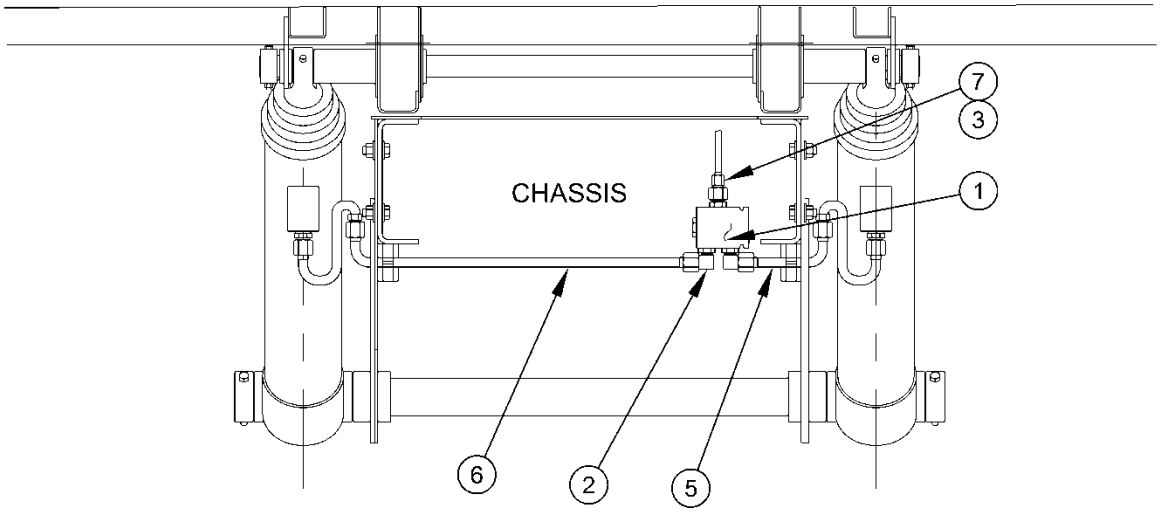
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HOIST CYLINDER FLOW DIVIDER COMBINER VALVE KIT

272-6863





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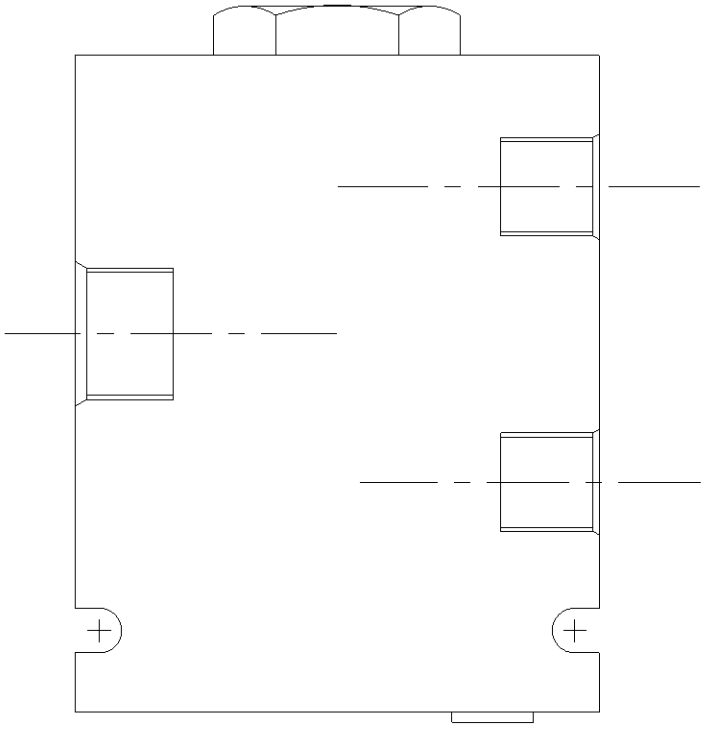
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HOIST CYLINDER FLOW DIVIDER COMBINER VALVE KIT

272-6863



031-5817

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HOIST CYLINDER FLOW DIVIDER COMBINER VALVE KIT

272-6863

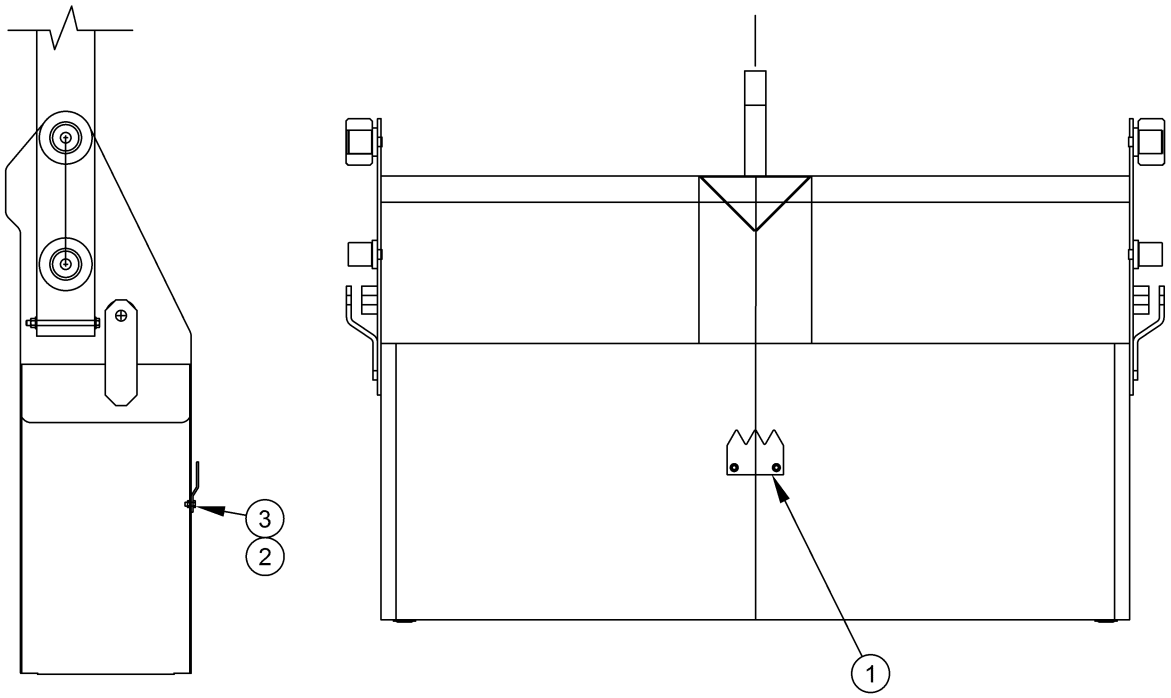
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-6863	KIT, Combiner Valve, Flow Divider, Hoist Cylinder	-	REF
1	031-5817	VALVE, Combiner Flow Divider	-	1
2	054-3340-008	ELBOW, 90°, Male, Tube to Str., 3/4"	-	2
3	054-6547-009	REDUCER, 1-1/16"-12 x 3/4"-16, JIC	-	1
-4	-	NA	-	REF
5	054-8788-002	VALVE, Divider, Tube, Hoist, 1/2"	-	1
6	054-8788-003	VALVE, Divider, Tube, Hoist, 1/2"	-	1
7	058-3205-013	REDUCER, Str. Thd., SAE 1-1/16"-12 x 3/4" to, 37° JIC 1-5/16”-12 x1”	-	3

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SINGLE AND DOUBLE TOTE BOX HOOK INSTALLATIONS

372-0297-001, 372-0297-002



NO ILLUSTRATION

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SINGLE AND DOUBLE TOTE BOX HOOK INSTALLATIONS

372-0297-001, 372-0297-002

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	372-0297-001	INSTALLATION, Hook, Tote Box, Single	A	REF
-	372-0297-002	INSTALLATION, Hook, Tote Box, Double	B	REF
1	112-8842-027	HOLDER, Bin, Plastic	A	1
-1a	112-8842-027	HOLDER, Bin, Plastic	B	2
2	FS230900	NUT, Lock, 3/8”-16, Gr. 5	A	2
-2a	FS230900	NUT, Lock, 3/8”-16, Gr. 5	B	4
3	FS410915	SCREW, Mach., Flat Hd., 3/8"-16 x 3/4"	A	2
-3a	FS410915	SCREW, Mach., Flat Hd., 3/8"-16 x 3/4"	B	4

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33 AND 38 YARD CS BUCKET ONLY KITS

272-9076, 272-9077

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	272-9076	KIT, Bucket Only, CS, 33 Yd.	A	REF
-	272-9077	KIT, Bucket Only, CS, 38 Yd.	B	REF
-10	015-2853	RING, Spacer	-	4
-15	054-3342-006	PLUG, Str. Thd., 3/4”-16 x 1/2”, #8	-	2
-26	112-9620	PANEL, Closure, Hopper, #11 Ga., Hi-Tension	-	1
-27	112-9621-001	PANEL, Closure, Hopper, SS, #11 Ga., Hi-Tension	-	1
-28	112-9621-002	PANEL, Closure, Hopper, CS, #11 Ga., Hi-Tension	-	1
-30	209-0036	SWITCH, Proximity, Jumper	-	1

1) Note: Items 1, 2, 4-9, 11-14, 16-25, 29 and 31-39 are Negative Quantities.
2) Note: Item 3 is Not Available.

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001-6425	5013	015-2785-200	2053	031-2616	2035
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003-4503	2067	023-0663	5007	031-3285-029	5029
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003-4514-007	7015	023-0686	5005	031-3285-030	5029
003-4514-010	2009	024-0712	5005	031-3285-031	5027
003-4514-010	3023	025-0473-005	3029	031-3285-031	5029
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A DOVER COMPANY

SERVICE MANUAL

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Environmental Solutions Group
A DOVER COMPANY

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WARNING

IF INCORRECTLY USED, THIS EQUIPMENT CAN CAUSE SEVERE INJURY, THOSE WHO USE AND MAINTAIN THE EQUIPMENT SHOULD BE TRAINED IN ITS PROPER USE, WARNED OF ITS DANGERS, AND SHOULD READ AND FULLY UNDERSTAND THE ENTIRE MANUAL BEFORE ATEMPTING TO SET UP, OPERATE, ADJUST OR SERVICE THE EQUIPMENT. KEEP THIS MANUAL FOR FUTURE REFERENCE

IMPORTANT SAFETY NOTICE

Proper service and repair are important to the safe, reliable operation of the Heil Co.'s products. Service procedures recommended by Heil are described in this service manual and are effective for performing service operations. Some of these service operations may require the use of tools or blocking devices specially designed for the purpose. Special tools should be used when and as recommended. It is important to note that some warnings against the use of specific methods that can damage the product or render it unsafe are stated in the service manual. It is also important to understand these warnings are not exhaustive. Heil could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Heil has not undertaken any such broad evaluations. Accordingly, anyone who uses service procedures or tools which are not recommended by Heil must first satisfy himself thoroughly that neither his safety nor the product safety will be jeopardized by the method he selects.

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SAFETY MESSAGES



Safety must always be given first consideration. Look for the Safety Alert Symbol. This symbol alerts you that personal injury or property damage is a possibility unless specified precautions are taken.

IMPORTANT SAFETY NOTICE

Proper maintenance and service are important to the safe, reliable operation of the Heil Co.'s products. Service procedures recommended by Heil are described in this service manual and are effective for performing service operations. Some of these service operations may require the use of tools or blocking devices specially designed for the purpose. Special tools should be used when and as recommended. It is important to note that some warnings against the use of specific methods that can damage the product or render it unsafe are stated in the service manual. It is also important to understand these warnings are not exhaustive. Heil could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Heil has not undertaken any such broad evaluations. Accordingly, anyone who uses service procedures or tools which are not recommended by Heil must first satisfy himself that neither his safety nor the product safety will be jeopardized by the method he selects.

 **WARNING** 

If incorrectly used this equipment can cause severe injury. Those who use and maintain the equipment should be trained in its proper use, warned of its dangers, and should read entire manual before attempting to set up, operate, adjust or service the equipment. Keep this manual for future reference.

 **MAINTENANCE** 

Do not service this machine until you have read and understood this manual.

 **LOCKOUT PROCEDURE** 

During repairs to the tailgate, packing mechanism, or hydraulic drive system, a lockout procedure should be employed whereby the power shall be shut off, the ignition key removed, and a sign be placed on the steering wheel warning against any attempt to start the unit.

 **OPERATION** 

Do not operate this machine until you have read and understood the operator's manual supplied with this equipment. When operating, be certain that all individuals are clear and be ready to stop and/or reverse the operation at any point.

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⚠ MODIFICATION OR RECONSTRUCTION ⚠

It is the responsibility of any person reconstructing or modifying this equipment to do so in accordance with the appropriate sections of the ANSI Z245. 1 safety standard and to furnish instructions and safety precautions associated with the reconstruction or modification of the unit.

⚠CAUTION

⚠CAUTION

Disengage PTO, or "Pump Switch when Refuse Unit is not in use, being repaired or worked upon or when traveling for longer than 2 minutes.

⚠CAUTION

In all cases, when unit is stored or not in use, all cylinders must be in the collapsed position, the PTO disengaged or pump switch is "OFF". Key should be removed from ignition to prevent tampering by unauthorized persons.

⚠CAUTION

Before entering the body area, place the unit in LOCK-OUT. To place unit in LOCK-OUT, stop the engine, set the brakes and make sure the brakes are holding and working properly, chock all wheels, remove the keys from the cab and insert a LOCK-OUT tag onto steering wheel.

⚠CAUTION

Whenever you are working on or about hydraulic lines or components, wear proper eye protection and avoid contact with oil if possible. Never check for oil leaks with your hands.

⚠CAUTION

Wear the proper safety equipment. Obtain additional safety equipment when your safety is in doubt. Hard hats, safety shoes, protective eye wear, reflective clothing and gloves may be required. Inquire from the owner/operator on any additional safety equipment.

⚠ WARNING

⚠ WARNING

Do not operate or service this machine until you have been fully trained and have read and understood the entire operation and maintenance manual supplied with this equipment. Manuals may be obtained from a Heil distributor.

⚠ DANGER

⚠ DANGER

Operating this unit under the influence of alcohol or drugs could result in personal injury or death!

⚠ DANGER

DO NOT enter under the chassis unless the unit is in LOCK-OUT. To place unit in LOCK-OUT, stop the engine, set the brakes and make sure the brakes are holding and working properly, chock all wheels, remove the keys from the cab and insert a LOCK-OUT tag on the steering wheel.

⚠ DANGER

Visually check the machine and run it through several cycles to find leaks, broken, missing or malfunctioning parts. If such deficient condition exists, immediately stop work on the machine and advise the appropriate person. A part failure during operating can cause damage to the unit, injury or death.

⚠ DANGER

Stand clear when tailgate is in motion and during unloading cycle. Do not stand under or cross under raised tailgate. Failure to do so may result in injury or death.

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IMPORTANT!

- Before starting any maintenance, study this section of the manual.
- Read all safety messages and decals on the unit.
- Clear area of other persons before performing any maintenance.
- Know and understand safe use of all controls.
- It is your responsibility to understand and follow manufacturer's instructions on equipment and care.

SAFETY DECALS ON THE UNIT

Make sure you can read all safety and instruction decals. Clean decals if you cannot read the words.

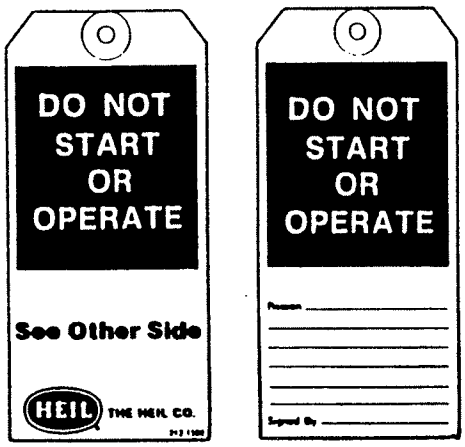
When cleaning the decals, use only a cloth, water and soap. Do not use solvent, gasoline, etc.

Decals **must** be replaced if (1) the decal is damaged, (2) the decal is missing or (3) the decal cannot be read.

If a decal is on a part that is replaced, make sure a new decal is installed on the new part. See back of manual for decal kit and sheets. Order decal sheet from your Heil Distributor.

DO NOT OPERATE TAG

When servicing the unit, hang a Do Not Operate tag on the steering wheel. A Do Not Operate tag, Heil part number 212-1586 is included with each new unit. Extra tags can be ordered through your Heil distributor.



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INTRODUCTION

This section is a guide for maintenance and adjustment of the Heil Recycle 2000 loader. It covers preventive maintenance, adjustment and troubleshooting hints.

In order to diagnose a problem quickly and effectively, a good serviceman must be thoroughly familiar with the machine. This section explains the system and major components to give you that knowledge. Diagrams and schematics of the hydraulic and electrical systems are at the back of this section for easy reference when troubleshooting the machine.

SERVICE/PARTS ASSISTANCE

Assistance in troubleshooting, repair or service of Heil equipment can be obtained by contacting the authorized Heil Distributor in your area. Heil service personnel are trained to give prompt, professional assistance.

Always give the machine model and serial number in all correspondence relating to this equipment.

PREVENTIVE MAINTENANCE

LUBRICATION

Before maintenance is begun, check the job carefully to find all the hazards present and make sure all necessary safeguards or safety devices are used to protect all persons and equipment involved.

Hydraulic Oil Recommendation - Use an oil that contains the following specifications:

Viscosity (ASTM D-88-56) - @ 100° F - 173/187 SSU
(Ref. 210° F.- Approx. 45 SSU min)
Viscosity Index (ASTM D-567-53) - 100 Optimum
Gravity °API (ASTM D-287-64) - 29.0 Minimum
Flash Point (ASTM D-92-57) - 400° F. Minimum
Fire Point (ASTM D-92-57) - 430° F Minimum (Ref.)
Pour Point (ASTM D-97-57) - 15° Maximum
Foam Resistance (ASTM D-892, Test. Seq. II)
Viscosity at Startup (7500° SSU Maximum)
Rust Resistance (ASTM D-665-60) - No Rust
Corrosion Resistance (ASTM D-130-65) - Classification 1
Oxidation Stability (ASTM D-943) 1500 Hours Minimum
Analine Point (ASTM D-611-64) - 180/220° F.
Anti-Wear Additive - .06% Zinc Minimum

NOTE: Cold weather operation requires special oil considerations. Viscosity should not exceed 7500 SSU at lowest startup temperature. Continuous operation should range between 60-1000 SSU for all temperature ranges.

The following oils by brand name or functional equivalents, are approved for use in the hydraulic system on this equipment.
Atlantic Richfield (ARCO) S-150 Chevron AW 32 Gulf Harmony AW 32 Mobil D.T.E. - 13 (Multi-Viscosity Oil) Shell Tellus AW 32 Shell Lo Hydraul 32 (Multi-Viscosity Oil) Texaco Randol HD 32 Texaco Hydraulic AZ Pure-Union Oil Co. Union AW 32
In cold weather, when temperature gets below (0 F), use only Mobil D.T.E.-13, Shell Lo Hydraul 32 and Texaco Hydraulic AZ

Figure 1. Hydraulic Oil Recommendation.

Oil Can Lubricant Recommendation — Non detergent SAE 20 engine oil must be used to lubricate all moveable mechanical parts not furnished with grease fittings. Squirt on sufficient oil to give good lubrication but do not bathe parts in oil. Always wipe off excess oil.

Grease Lubricant Recommendation — Use No. 1 pressure gun grease. Before engaging grease gun, the fitting should be cleaned. Always pump enough grease to purge the joint of contaminated grease and wipe off the excess.

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MAINTENANCE INTERVALS

Normal maintenance done according to an established schedule is preventive maintenance. On this equipment, preventive maintenance involves machine lubrication and normal maintenance intervals given in this manual are based on an 8-hour day and average operating conditions. Severe use or adverse conditions make it necessary to do this maintenance more frequently.

PREVENTIVE MAINTENANCE CHART

Ref.	Component/System	Daily-8 Hours	Weekly-40 Hours	1 Month-200 Hours	12 Months-2000 Hours	Service/Check
1.	Hydraulic System	X				Check oil level in tank & refill
			X			Check cylinders, pump & system for leaks; repair/replace if necessary
			X			Check control valve seals for leaks, repair/replace if necessary
				X		*Replace filter
				X		Replace tank breather
					X	Drain, flush & refill, change filter
2.	Lights & Wiring	X				Check for proper operation
3.	Operator's Control	X				Check for proper operation
4.	Front Mount Pump Power Take Off (if so equipped)		X			Check seals for leaks & operation
			X			Check driveline for smooth operation Check setscrews for tightness & that keys are in place
5.	Grease Fittings		X			Lubricate (See Figure 5)
6.	Control Linkage		X			Check & make sure all cotter pins are in place
7.	Packing Mechanism, Tailgate & Body	X				Check & remove any accumulation of refuse in front of packer panel
			X			Check tailgate seal for damage or missing gasket
			X			Check pivot pins retaining capscrews for tightness
8.	Throttle Stop Device				X	Check & adjust if necessary

*Replace oil filter element after first month of operation, then every three (3) months (500 hours) or when required by in-cab monitor.

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GREASE FITTINGS for UNITS SERIAL NUMBER THRU 1138

Use No. 1 pressure gun grease. Clean fittings before applying grease and always pump enough grease into joint to remove the old grease. Wipe off excess grease.

REF. NO.	LOCATION/TITLE	QTY.	INTERVAL
1	Tailgate Cylinders	4	Weekly/40 Hours
2	Body Hoist Cylinders	4	Weekly/40 Hours
3	Top Door Cylinders	8	Weekly/40 Hours
4	Packer Cylinders	4	Weekly/40 Hours
5	Front Pump Drive Shaft or PTO Drive Shaft	3	Weekly/40 Hours
6	Packer Link Arms	4	Weekly/40 Hours
7	Rear Body Pivot Hinge	2	Weekly/40 Hours
8	Top Door Pivot Hinge	8	Weekly/40Hours
9	Loading Bin Link Arms	8	Weekly/40 Hours
10	Packer Pivot Pins	4	Weekly/40 Hours

NOTE: Lubricate moveable mechanical parts without grease fittings every 60 days with non-detergent engine oil.

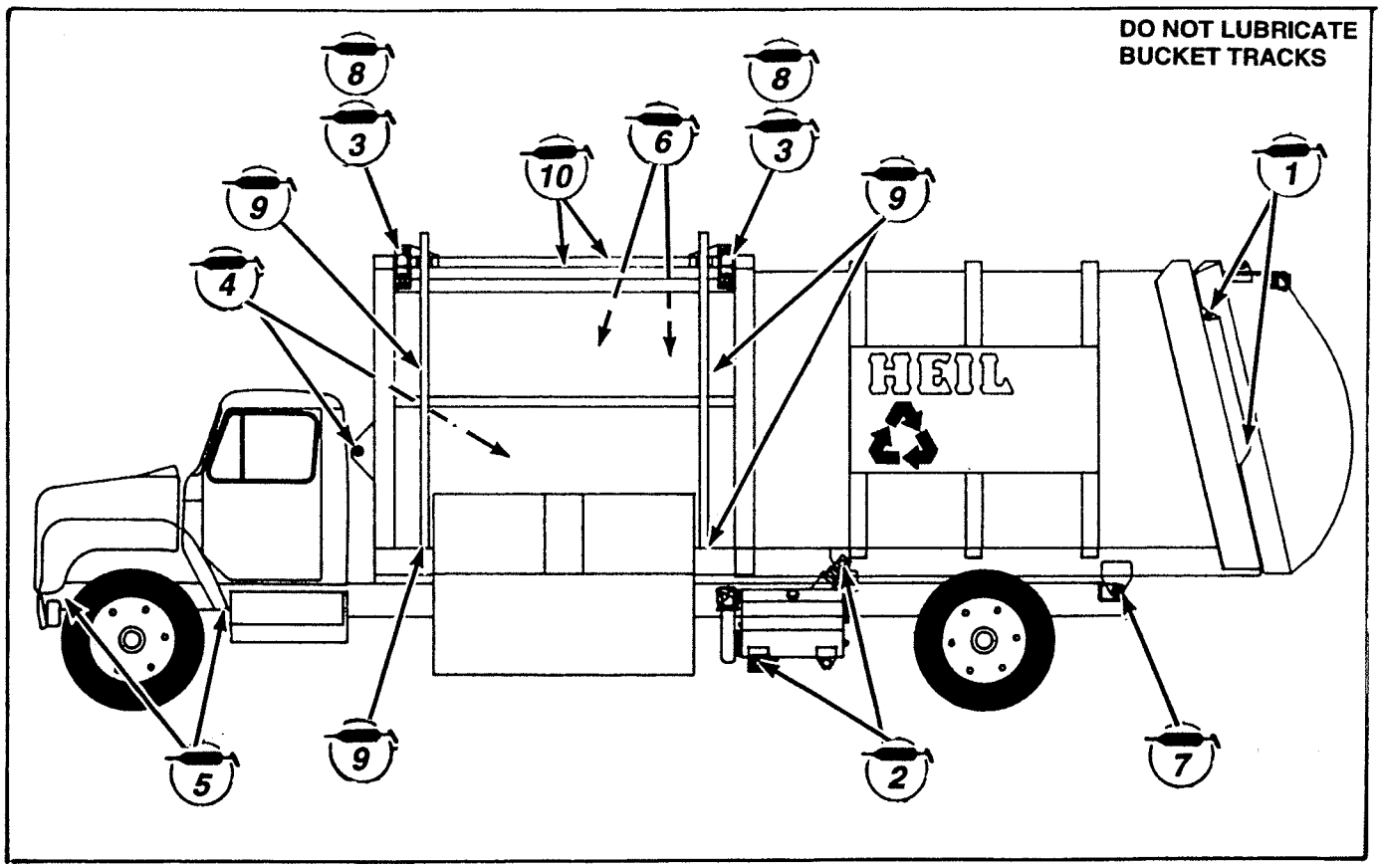


Figure 1.

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GREASE FITTINGS for UNITS SERIAL NUMBER 1139 and AFTER

REF. NO.	LOCATION/TITLE	QTY.	INTERVAL
1	Lower Tailgate Cylinders	4	WEEKLY/40 HOURS
2	Upper Tailgate Cylinder	4	
3	Upper Tailgate Lock Cylinders	2	
4	Body Raise Cylinders	4	
5	Top Door Cylinders	4*	
6	Packer Cylinders	4	
7	Front Pump Drive Shaft or PTO Drive Shaft	3	
8	Packer Link Arms	4	
9	Rear Body Pivot Hinge	2	
10	Top Door Pivot Hinge	4*	
11	Loading Bucket Link Arms	4*	
12	Packer Pivot Pins	4	

***NOTE**: Quantities listed are for single bucket units. Quantity of 8 needed for dual bucket units.

Lubricate moveable mechanical parts without grease fittings every 60 days with non-detergent engine oil.

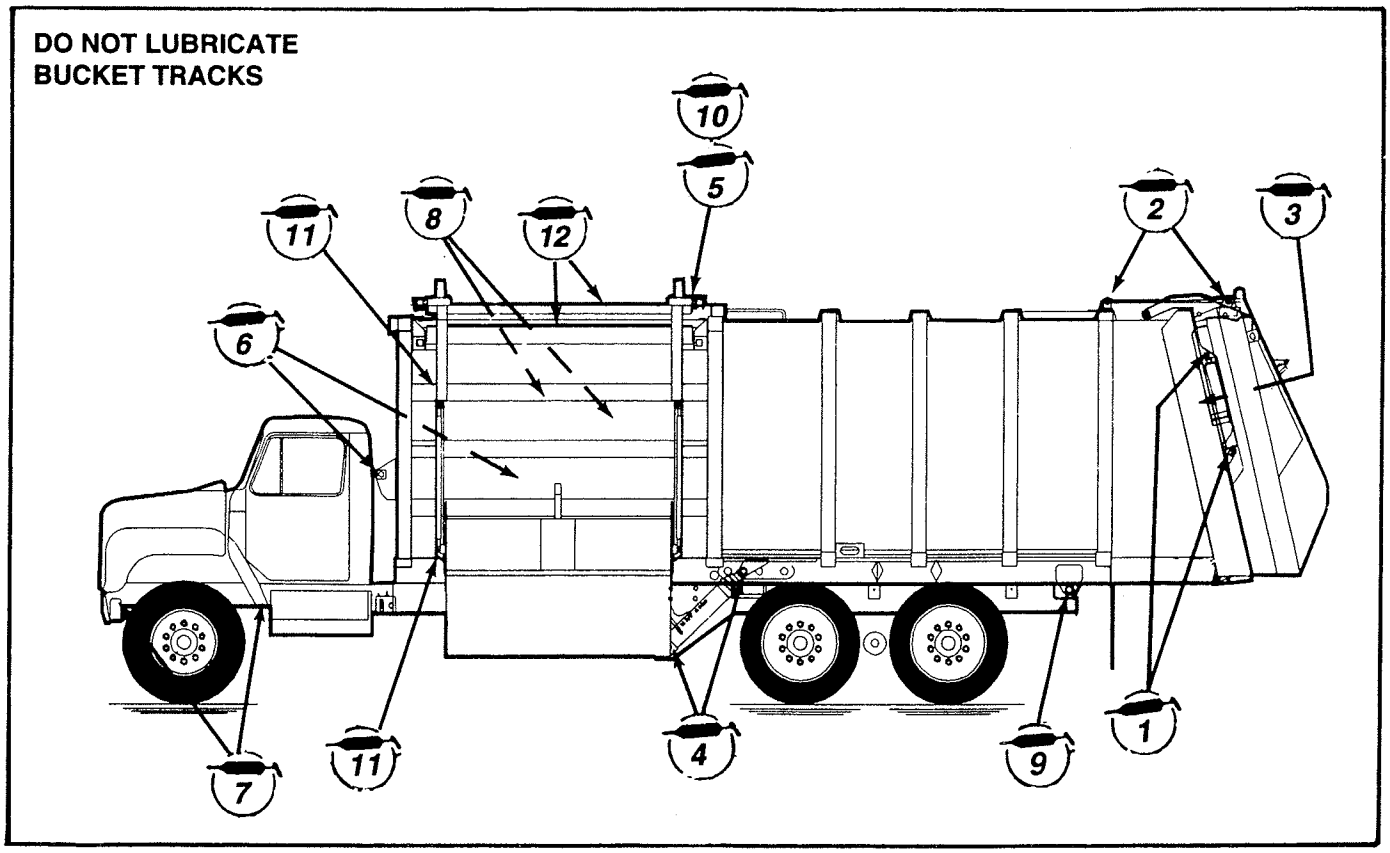


Figure 1A.

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NOTES and COMMENTS:

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SPECIFICATIONS

Hydraulic Oil Tank with External Mounted Oil Filter	31 Gal.
Hydraulic Oil Tank with In-Tank Oil Filter	25.50 Gal.
External Mounted Hydraulic Return Line Filter	Single, 6-Micron
In-Tank Oil Filter	10-Micron, Absolute
Hydraulic Oil Tank Suction Strainer	100 Mesh Screen
Hydraulic Cylinders:	
Upper Tailgate Raise	3" Bore x 18.44" Stroke
Upper Tailgate Lock	3" Bore x 3-5/8" Stroke
Lower Tailgate Raise	3" Bore x 25-1/4" Stroke
Body Raise - (33 yd. units)	4" Bore x 56" Stroke
Body Raise Cylinder - (38 yd. units)	5" Bore x 67" Stroke
Packer	4" Bore x 37" Stroke
Top Door	3" Bore x 22" Stroke
Hydraulic Pump	23 GPM @ 1200 RPM @ 2000 PSI
Main System Relief Pressure Setting	33 yd. units - 1800 PSI ∓50 38 yd. units - 2000 PSI ∓50
Loading Bucket Cycle Time	12 Seconds (Approx.)
Loading Bucket Capacity	.80 cu. yd.
Packer Cycle Time (Empty)	18 Seconds (Approx.)

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OIL LEVEL CHECK PROCEDURE

Check the tank oil level daily or after every 8 hours, whichever comes first.

IMPORTANT

Contamination is the worst enemy of any hydraulic system. Keep dirt from entering the system. Clean around any system component before disconnecting or removing it. When filling the reservoir, filter the oil through a 200 mesh (or finer) screen. NEVER use a cloth to filter the oil.

HYDRAULIC OIL TANK

Before checking the oil level, make sure unit is in the following position.

A. Truck: on level ground.
B. Top Doors: are open.
C. Tailgate: is fully down and locked.
D. Body: is fully down.
E. Buckets: are in the "up" position.
F. Packer Panels: at the front of body.

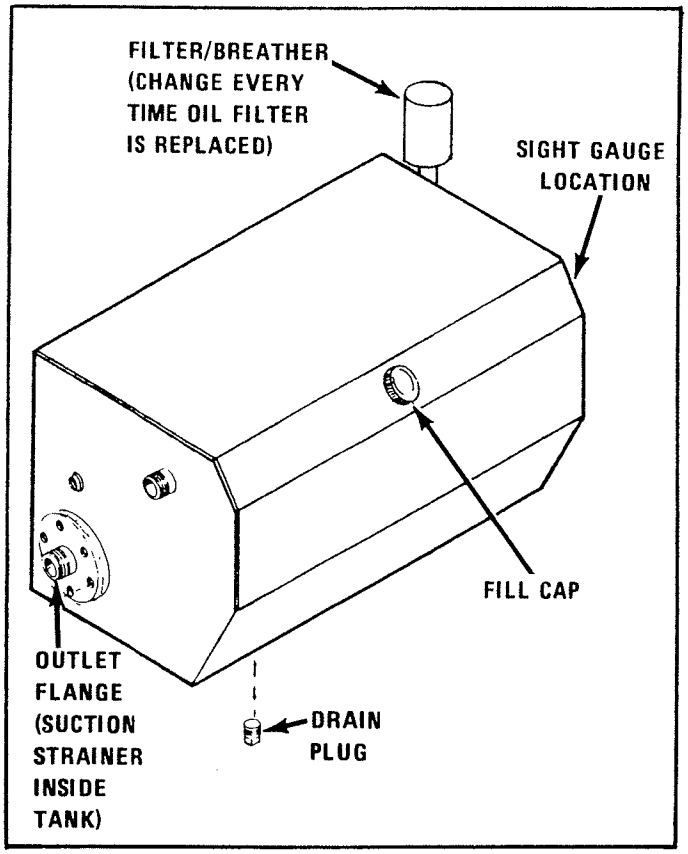


Figure 2. Oil Tank with External Mounted Oil Filter.

The oil level should be between FULL and ADD on the tank sight gauge. If low add recommended oil, (See Page 8.5).

CHANGING THE FILTER ELEMENT

NOTE

Change the filter more often under certain conditions such as extremely dusty atmosphere or area. Use only Heil replacement filters. Filter element can be purchased from your local Heil Distributor.

EXTERNAL MOUNTED RETURN LINE FILTER ELEMENT

1. Loosen and remove bowl/rotolok assembly from head.
2. Remove the element with gasket from the bowl. Discard element assembly.
3. Install new element into bowl and apply film of clean oil to gasket.
4. Install bowl into head assembly and hand turn until tight.
5. Check for leaks with pump operating.

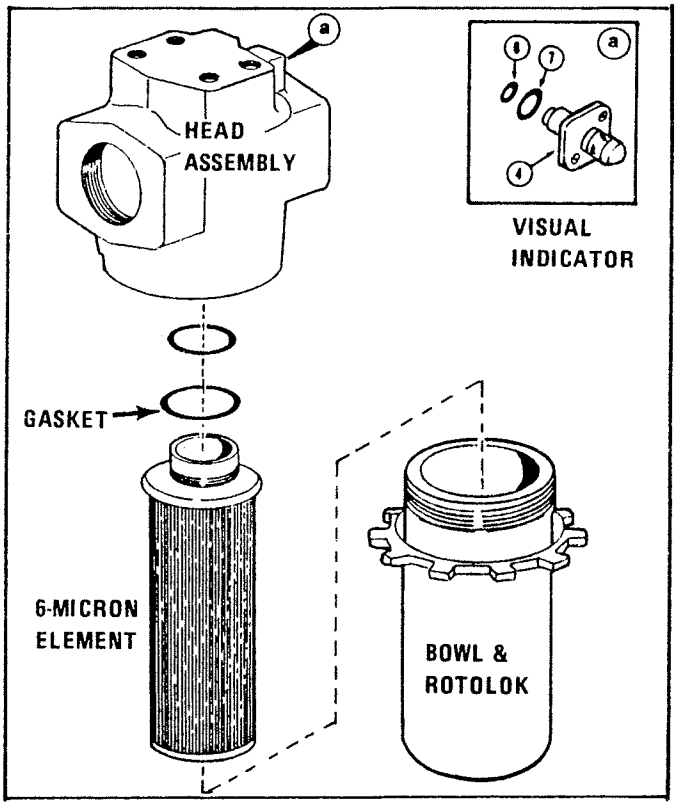


Figure 3. External Mounted Oil Filter.

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HYDRAULIC OIL TANK with IN-TANK FILTER

Before checking the oil level, make sure unit is in the following position.

A. Truck: on level ground.
B. Top Doors: are open.
C. Tailgate: is fully down and locked.
D. Body: is fully down.
E. Buckets: are in the "up" position.
F. Packer Panels: at the front of body.

The oil level should be between FULL and ADD on the tank sight gauge. If low add recommended oil, (See Page 8.5).

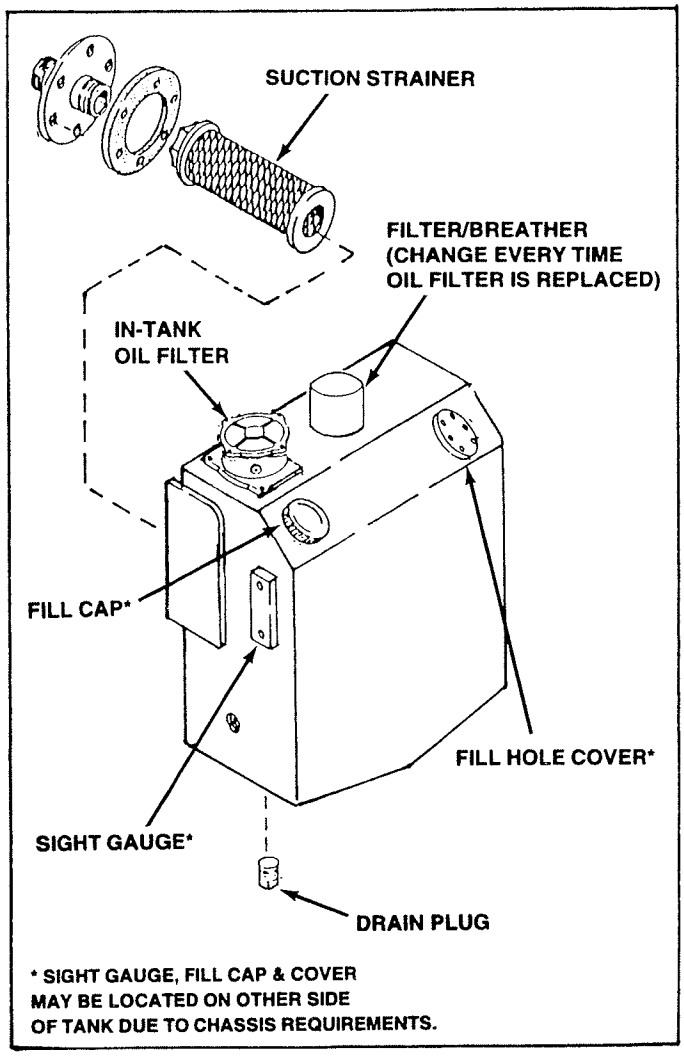


Figure 4. Oil Tank with In-Tank Oil Filter.

IN-TANK FILTER ELEMENT

The element needs to be serviced when the change light (located on monitor in cab) comes "on".

Change element as follows (with unit shut down):

1. Remove nuts and cover.
2. Remove insert (this holds element in place).
3. Remove the by-pass assembly.
4. Remove element using a twisting motion and discard in a safe environmental way.
5. Clean housing with a lint free cloth.
6. Check all o-rings and gaskets and replace, if necessary.
7. Lubricate all o-rings and gaskets.
8. Install new element.
9. Reinstall by-pass assembly.
10. Reinstall insert assembly.
11. Reinstall cover with nuts (torque nuts to 35 ft./lbs.).

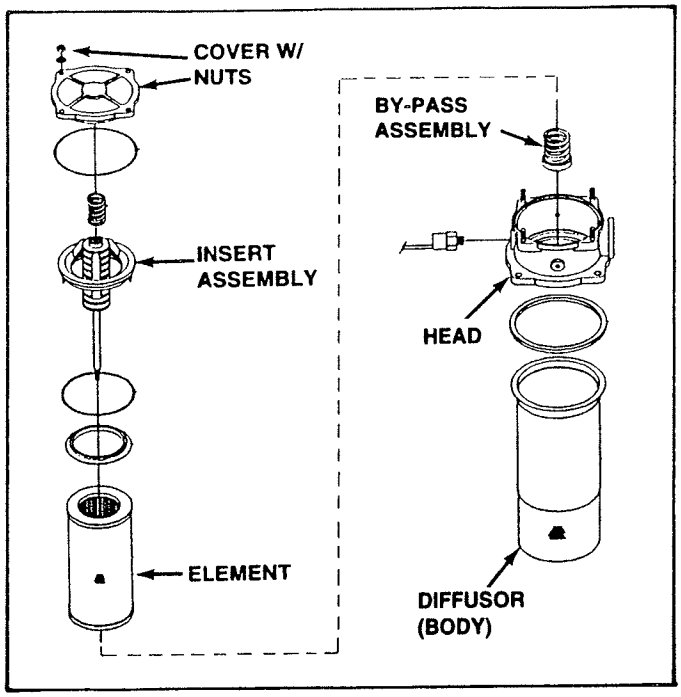


Figure 5. In-Tank Oil Filter.

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HYDRAULIC OIL DRAINING AND CLEANING PROCEDURES

The hydraulic oil should be changed at least annually, or every 2000 hours of operating time, whichever comes first.

⚠ DANGER

Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues causing serious injury. Use a piece of wood or cardboard when looking for leaks — never use the hands or other parts of the body.

Relieve hydraulic pressure before disconnecting circuits. When reassembling make absolutely certain all connections are tight.

If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious complications may arise if medical attention is not given at once.

It must be remembered that almost all hydraulic system malfunctions can be traced to dirt in the fluid. When working with the hydraulic system, the hands, tools, working area and parts must be kept as clean as possible. Drain the Hydraulic System fluid as follows.

1. Disengage the PTO, shut-off the engine, and remove ignition key.
2. Remove the breather cap from top of tank and then the drain plug from bottom of tank (See figure 2 or 4). Allow oil to drain into a suitable container.
3. While fluid is draining from the tank, clean the breather element in a nonflammable cleaner and thorougly dry. Change the breather if it can no longer be cleaned.
4. Remove four bolts with lockwashers from flange in back of oil tank, then pull oil strainer assembly out of back of tank.
5. Clean strainer in a solvent that is nonflammable.
6. Using new gasket, install strainer assembly into tank. Install bolts and lockwashers into flange and tighten.
7. Install drain plug and reconnect and tighten all hose connections.
8. Fill tank to full level with recommended oil. (Refer to "Oil Level Checking Procedure").

   Before filling the tank, make certain the funnel is clean and a 200 mesh (or finer) screen is used to strain the hydraulic oil.
9. Check the entire system to make sure all connections are tight.
10. Start the truck's engine and engage the pump.

⚠ WARNING

Be sure all individuals are clear of any moving parts, mechanisms or components of the unit before actuating controls. During any such operation, be attentive at all times and be ready to stop or reverse the function.

11. Operate packing panel through 10 cycles to be sure all air is removed from the circuits.
12. Operate bucket to its highest and lowest setting.
13. Open tailgate to its highest and lowest setting.
14. With the packing panel in the retracted position and the bucket in the "in-transit" position, check oil level in the tank. If nececessary, add recommended oil as described under "Hydraulic Oil Tank."

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PROCEDURE TO PURGE THE HYDRAULIC SYSTEM

If the preventative maintenance procedures are carefully followed, contaminated particles and foreign material in the hydraulic system will be trapped.

It is very important that the micron return filter and 100 mesh suction strainer are changed at the recommended intervals. The return line filter has a bypass valve and will allow contamination to continue circulating in the system if the element becomes clogged.

In the event the system becomes contaminated due to component failure or other causes, the following procedures should be used to purge the system.

1. Extend the body raise cylinders to lower the oil level in the tank. Be sure to lower body props on unit.

2. Remove and replace the filter element from the oil filter.

3. Raise body props and lower the body fully.

4. Raise and lower the buckets to allow oil to circulate through the new filter, cleaning the oil.

IMPORTANT

Do not operate any other hydraulic component during this procedure.

5. Repeat the procedure as necessary until the system is purged.

If more information is needed, contact the Heil Service Department. If the contamination has reached the cylinders and other hydraulic components, a complete take-down may be necessary.

CYCLE TIMES

The desired system hydraulic flow rate for all components is set by the proper speed of the engine RPM's. The proper engine setting is 1200 RPM, pump output is 22 GPM, and the hydraulic system pressure is set at 2000 PSI.

The bucket cycle time is 12 seconds. The packer cycle time is 18 seconds (approx.) If these cycle times are not attained, it may be one of the following.

1. Engine RPM is too low.
2. Hydraulic pump faulty.
3. Main control valve spool not engaged.
4. Oil bypassing in the cylinders.

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BODY PROPS

Body props are supplied with the unit and are located on both sides under the body and forward of the rear wheels. Refer to the Operator's Manual for proper body - raise procedures.

NOTE: EMPTY BODY OF ALL REFUSE BEFORE USING BODY PROPS.

A. To lower props - partially raise the body, remove handle from chain (located on left hand street side of the unit) and rotate the interconnected body props down. Lower the body so props mate with their rest points and all load is removed from the body raise cylinders, see Figure 6.

B. To store props - partially raise the body, return props to transit position and re-install handle in chain.

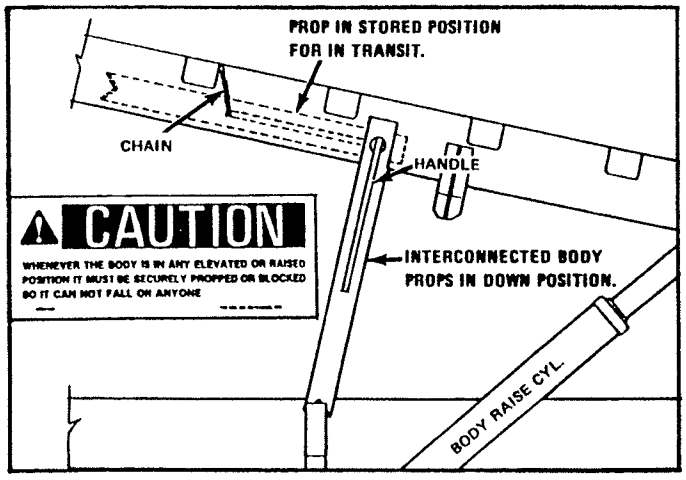


Figure 6. Body Props.

⚠CAUTION

Interconnected body props are installed on the unit. Both props must be used.

⚠CAUTION

Be sure the body is unloaded before using body props.

ALTERNATE BODY BLOCKING

In the event the body is in a position in which the factory props CANNOT be used, an alternative method for blocking is shown in Figure 7. Be sure timbers are securely braced against body crossmembers.

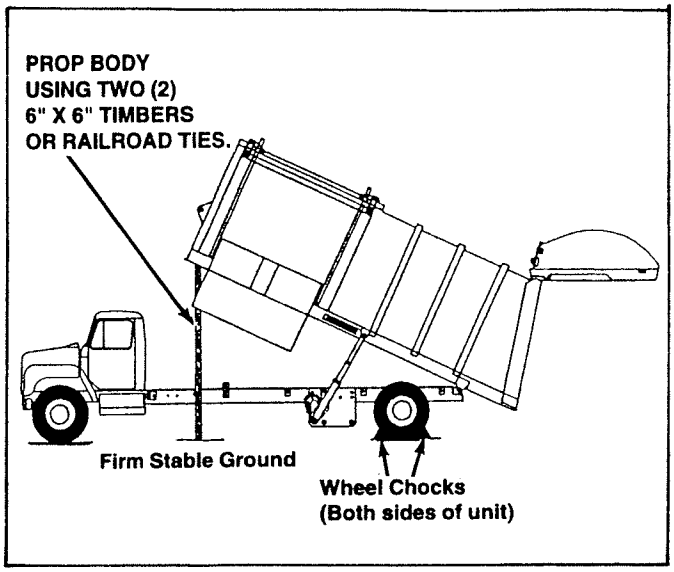


Figure 7. Alternate Body Blocking.

⚠ DANGER

Whenever the body is in any elevated or raised position, it must first be emptied and then securely propped or blocked so it cannot lower, which may cause injury or death.

IMPORTANT

IF PROPER EQUIPMENT IS NOT AVAILABLE OR IF YOU ARE INEXPERIENCED IN PERFORMING THE ABOVE, DO NOT ATTEMPT REPAIRS. GET EXPERIENCED HELP AND PROPER EQUIPMENT BEFORE PROCEEDING.

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LOWERING A RAISED BODY WHEN THE IN-CAB OPERATING CONTROLS BECOME INOPERATIVE OR IF THE RAISED BODY WILL NOT LOWER FOR ANY OTHER REASON.

⚠ DANGER

Never enter between a raised body and chassis frame as it may descend and cause injury or death. Read and understand the following instructions before proceeding.

IMPORTANT

Lower the body props on unit before starting this procedure. Make sure all persons are cleared at least 30' away from the vehicle while performing the following steps unless otherwise indicated.

1. Set vehicle parking break and choke, or block wheels securely to keep the vehicle from moving. Make sure parking breaks are operational before continuing.

2. Either allow the load to finish dumping or use a backhoe or front end loader if parts of load are stuck in body. **NOTE! Use extreme caution not to overturn vehicle.**

3. Block the raised body with two 6" by 6" timbers or railroad ties (body supports) as shown in figure 7 to support the body and any remaining load.

4. Connect a chain or cable sling to an overhead crane, truck crane, or other lifting devices capable of holding and lowering the body and load.

5. Attach the chain or cable device with hooks, all of adequate lift rating, to the body rubrail just behind the front crossmember as shown. Tighten the slack on the sling without relieving the pressure from the body supports.

6. With the body supports still in place **from a position on the ground under the chassis frame**, shift the control valve at the valve location into the "Lower" position. If the valve is spring centered, wire or lock the valve in the "Lower" position.

7. To prevent injury or death, move out from under the truck chassis and clear all persons from the area where the raised body could potentially overtum. Use the crane mechanism to slightly raise the Recycle body to relieve pressure from the body supports. Be sure the crane lifting device is securely attached to the body and that both the crane and body are stable before removing the body supports.

8. Remove body supports, being sure not to place any part of your body between the unit and chassis frame.

9. Using the crane, slowly lower the body until is resting on the chassis frame.

10. Proceed to perform the repairs necessary to correct the control mechanism or other malfunction. Feel free to contact your authorized Heil distributor for further assistance.

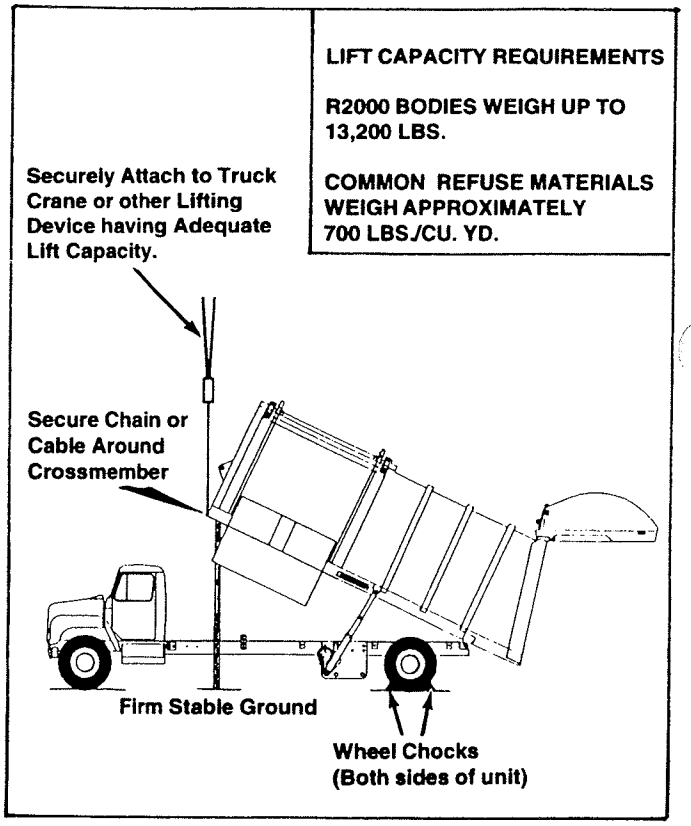


Figure 8.

IF PROPER EQUIPMENT IS NOT AVAILABLE OR IF YOU ARE INEXPERIENCED IN PERFORMING THE ABOVE, DO NOT ATTEMPT TO LOWER THE BODY OR ATTEMPT REPAIRS. IN EITHER CASE GET EXPERIENCED HELP AND PROPER EQUIPMENT BEFORE PROCEEDING. IF YOU SHOULD HAVE ANY QUESTIONS CONCERNING ANYTHING CONTAINED IN THESE INSTRUCTIONS, PLEASE CONTACT THE HEIL CO. FIELD SERVICE DEPT. (615) 899-9100.

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TAILGATE PROP

Whenever the tailgate is opened for service or maintenance, it must be propped. Follow the procedures as listed to build a prop.

A. BUILDING A PROP - (SEE FIGURE 9)

Build a prop as specified in figure

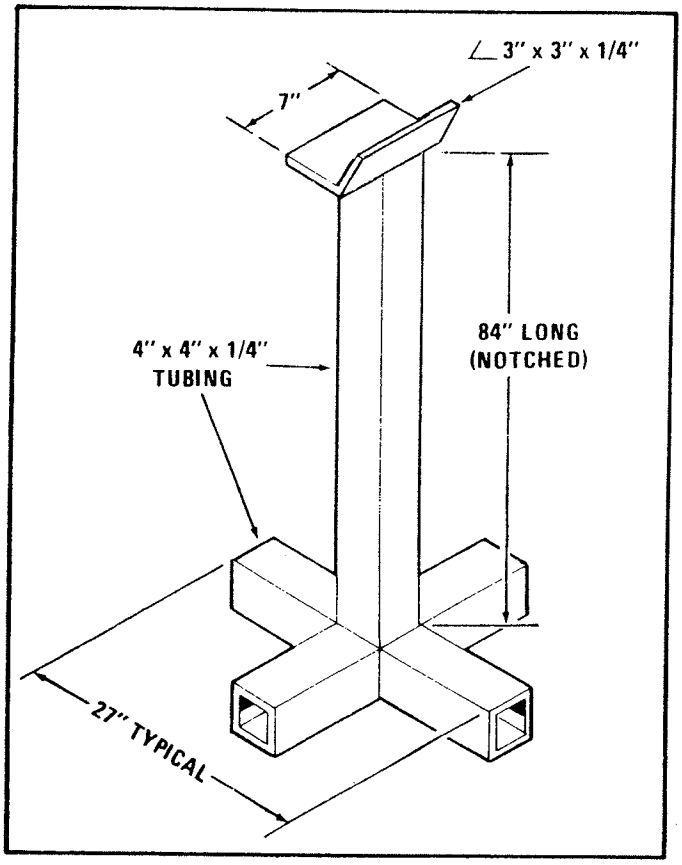


Figure 9.

B. PROPPING THE TAILGATE

⚠ DANGER

Stand clear when tailgate is in motion and during unloading cycle. Do not stand under or cross under raised tailgate. Failure to do so may result in injury or death.

1. Set unit on flat surface and apply parking brake.

2. Unlock tailgate and using the tailgate control lever, raise tailgate. See operator's manual for proper procedures.

3. Locate the prop in the center of tailgate.

4. Slowly lower the tailgate (by partial movement or feathering of control lever) to rest on prop (see figure 11).

5. Turn off engine and remove ignition key.

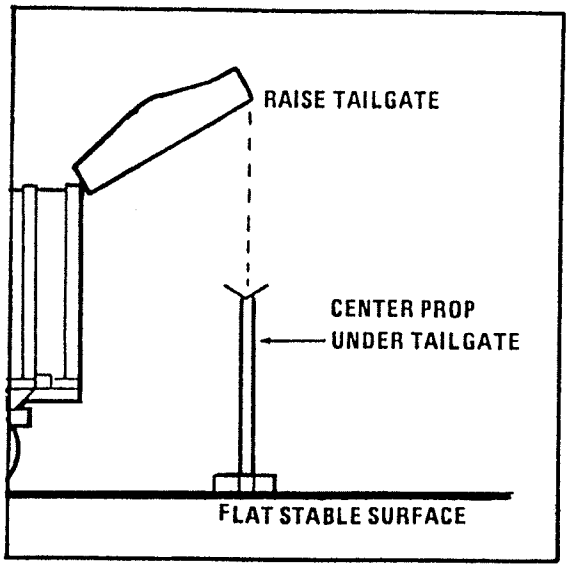


Figure 10.

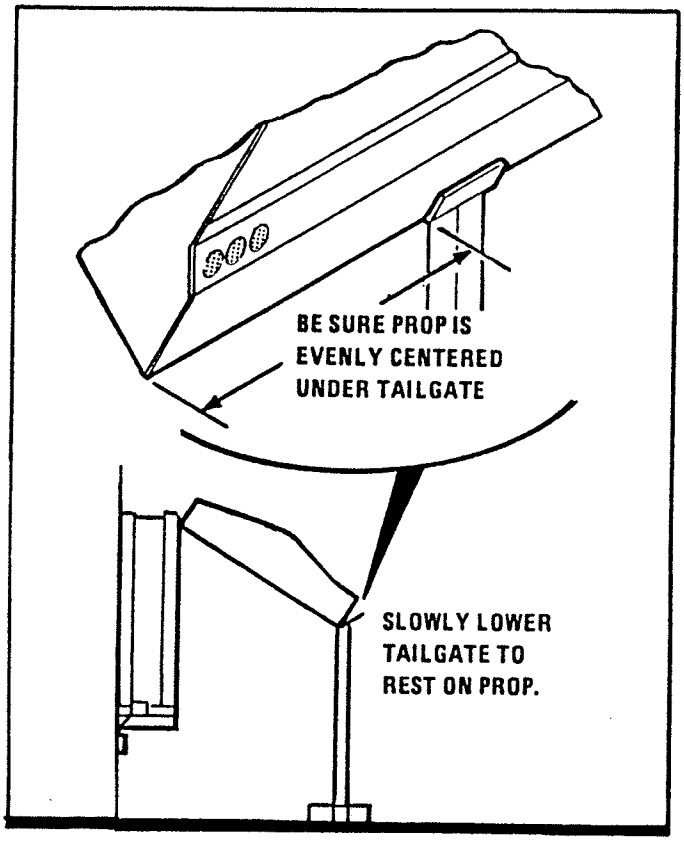


Figure 11.

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CLEANING BEHIND THE PACKER PANELS

1. Extend the packer panel fully to the rear of hopper area.

2. Disengage PTO or pump switch.

3. Turn off engine and remove ignition key.

⚠ DANGER

Before entering the body area, place the unit in LOCK-OUT. To place unit in LOCK-OUT, stop the engine, set the brakes and make sure the brakes are holding and working properly, chock all wheels, remove the keys from the cab and insert a LOCK-OUT tag onto steering wheel.

4. Remove front end cover between body and cab by turning the win nuts with your hand. Clean lower packer panel area and replace cover.

5. To get to the upper packer panel area where it can be cleaned, enter through the opening on top of the body. **Be sure unit is in lock-out before entering body.**

CLEAN/INSPECT THE TAILGATE SEALS

Periodically check the inner and outer tailgate seal to insure they align properly with the body. Inspect seal for possible wear or damage (see figures 13 and 14). Replace seal, if necessary.

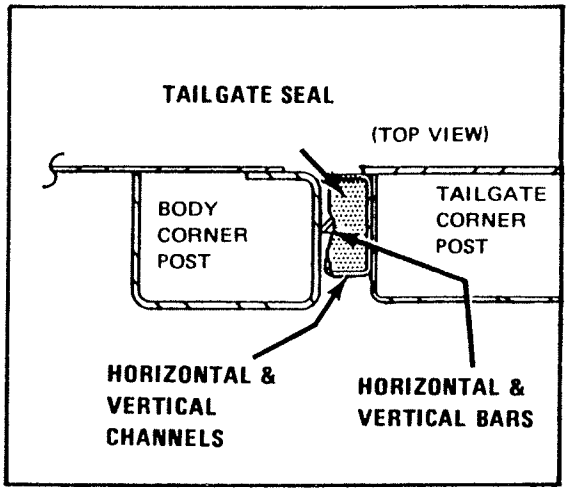


Figure 13. Outer Tailgate Seal Installation.

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MAIN CONTROL VALVE

The main control valve contains independent valve valve sections and an outlet and inlet section. These sections are mounted together and control all hydraulic functions, see figure 15.

MAIN SYSTEM RELIEF VALVE

The main system relief valve is located in the inlet section, see figure 15. This valve controls the system operating pressure and is set at 1800 or 2000 PSI, depending on size of unit, at the factory. See Pressure Setting Procedure on how to set the pressures.

TAILGATE LOCK VALVE

Used in the tailgate circuit, this valve prevents the tailgate from opening when it is down and latched.

The valve will open and allow oil to enter the oil tank when excessive pressure is in the tailgate cylinder rod end.

Valve may need to be replaced if the talgate will not stay latched.

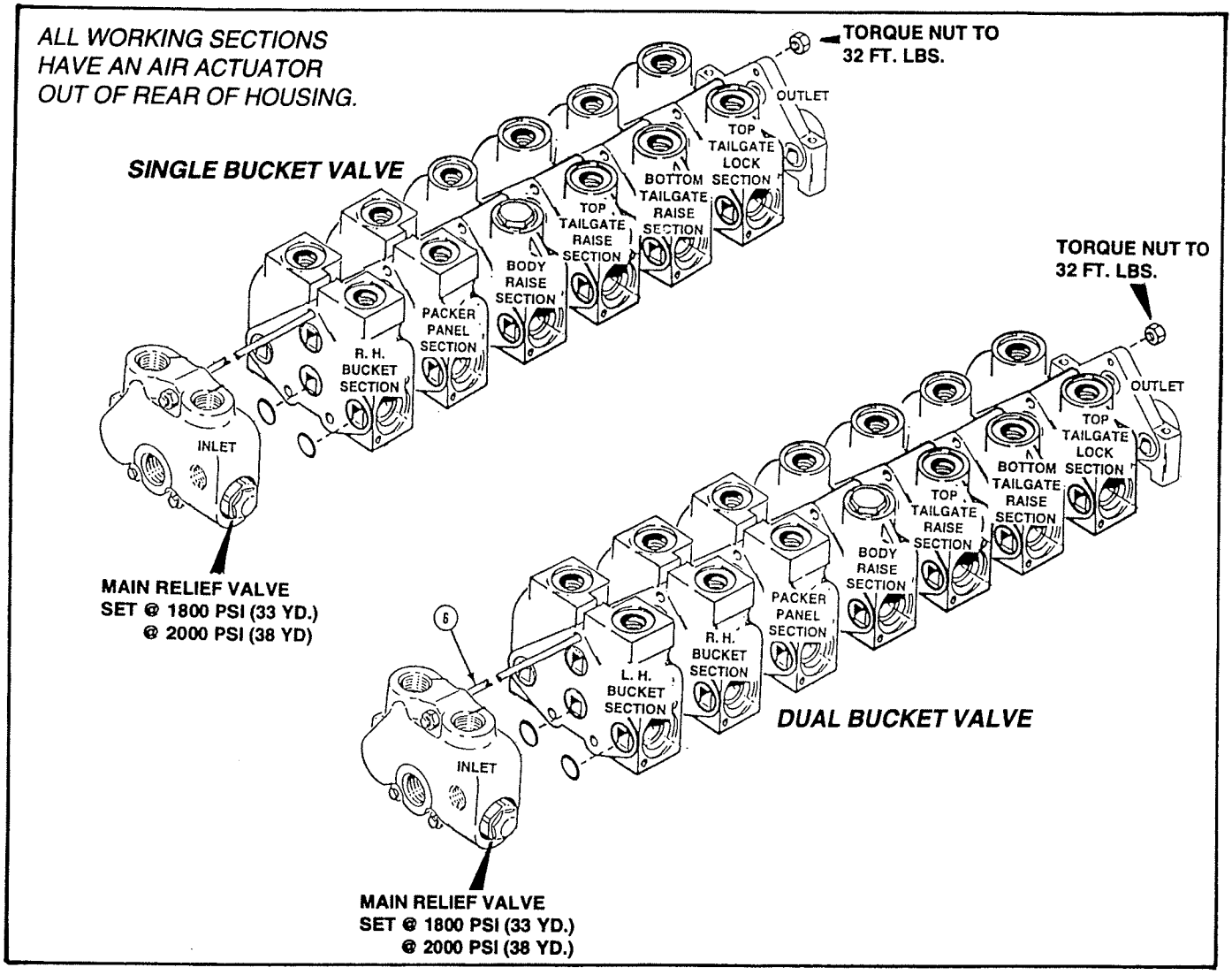


Figure 15.

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HYDRAULIC PRESSURE SETTING PROCEDURES

BEFORE STARTING PROCEDURES

1. All pressure must be set at throttle speed, 1400 to 1500 RPM.

2. Set pressure in the following sequence.

TOOLS REQUIRED

1 - 0-3000 PSI gauge assembly
1 - 9/16" open end wrench
1 - 5/32" allen hex wrench
1 - small flat head screwdriver

Check the gauge for accuracy. System operating pressure is critical and should be one of the first things checked when a malfunction is noted.

When setting both main relief and packer panel pressure switch pressures, **always** set the pressure switch first.

PACKER PANEL PRESSURE SWITCH ADJUSTMENT

1. Remove front cover and disconnect the packer panel extend proximity switch, see figure 15A.

RAISE THE TAILGATE AND THEN RAISE THE BODY ENOUGH TO LOWER THE BODY PROPS.

⚠ DANGER

Stand clear when tailgate is in motion and during unloading cycle. Do not stand under or cross under raised tailgate. Failure to do so may result in injury or death.

⚠ DANGER

Whenever the body is in any elevated or raised position,it must be securely propped or blocked so it can not fall on anyone. Failure to do sp may result in injury or death.

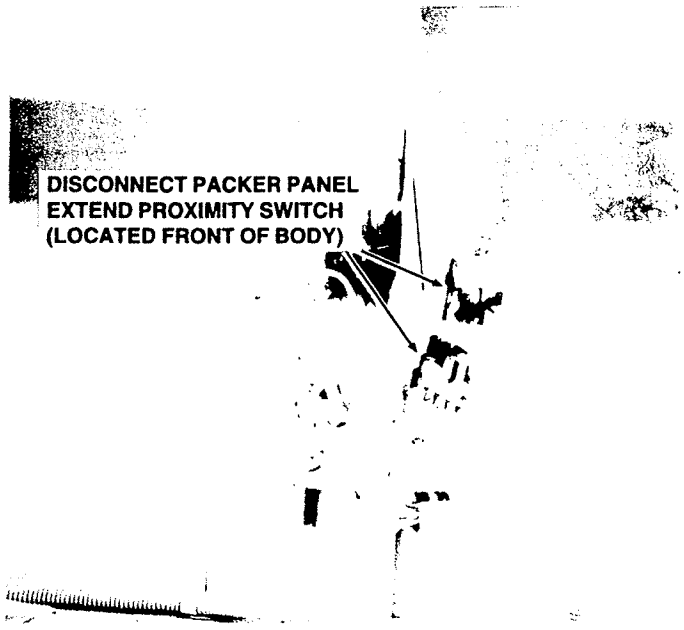


Figure 15A.

2. With pump or PTO switch on, slowly raise the bucket to bottom out the cylinder. Adjust the main relief to 1600 PSI (33 yd) or 1800 PSI (38 yd).

3. Turn the packer panel pressure switch in (clockwise) 3 turns with a small flat head screwdriver.

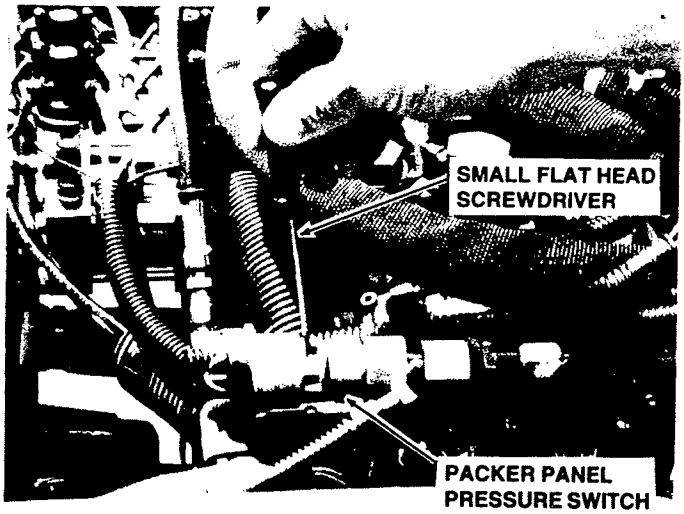


Figure 15B.

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4. Depress and release the start button (in cab), see figure 15C. The packer panel will start to extend.

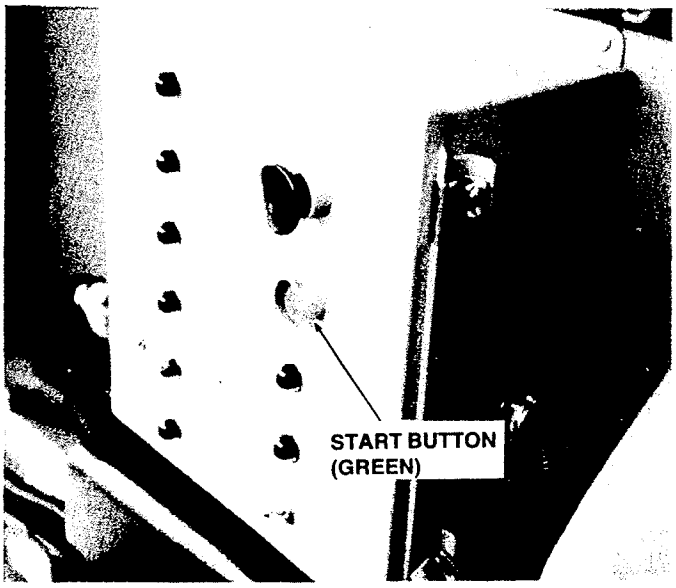


Figure 15C.

5. When packer panel reaches its full extension (it will stay in the full extended position until the pressure is adjusted), slowly turn out (counterclockwise) on pressure switch until the panel retracts. Pressure is now set at 1600 PSI.

6. Reset the main relief at 1800 PSI (33 yd) or 2000 PSI (38 yd), see main relief adjustment.

7. Remove pressure gauge, raise body slightly to be able to store body props and then lower body and tailgate.

8. Reconnect proximity switch and reinstall the front cover.

MAIN RELIEF VALVE ADJUSTMENT

If the system is not operating at 1800 PSI (33 yd) or 2000 PSI (38 yd), follow these steps to set the pressure.

RAISE THE TAILGATE AND THEN RAISE THE BODY ENOUGH TO LOWER THE BODY PROPS.

⚠ DANGER

Stand clear when tailgate is in motion and during unloading cycle. Do not stand under or cross under raised tailgate. Failure to do so may result in injury or death.

⚠ DANGER

Whenever the body is in any elevated or raised position,it must be securely propped or blocked so it can not fall on anyone. Failure to do so may result in injury or death.

1. Install an accurate 0-3000 PSI pressure gauge in the 1/4" NPT tapped hole on the 90° elbow going into the inlet section, see figure 15D.

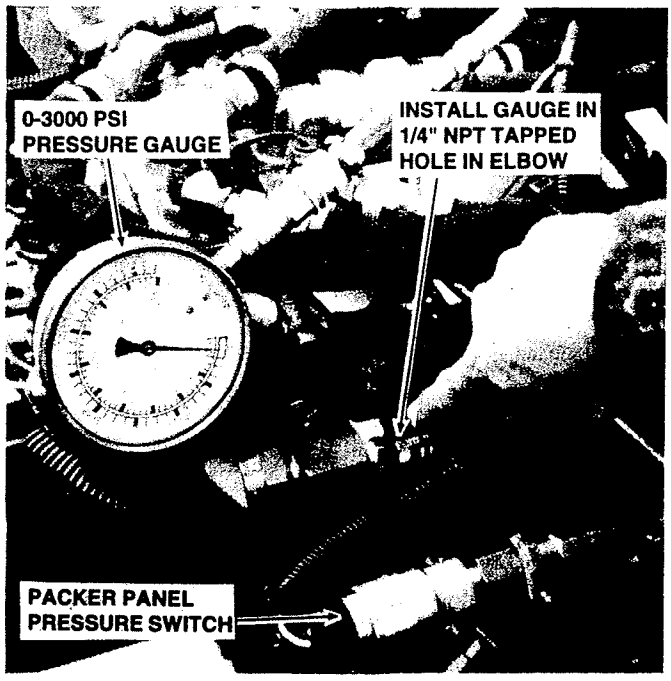


Figure 15D.

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2. Slowly pull up on bucket control lever to raise the bucket fully and bottom out the top door cylinder.

3. With the engine running at 1200 RPM's and the top door cylinders bottomed out, the pressure gauge should read 1800 PSI (33 yd) or 2000 PSI (38 yd).

4. If the pressure setting is not 1800 PSI (33 yd) or 2000 PSI (38 yd), adjust pressure up or down using a 5/32" allen wrench to turn adjusting screw on the main relief valve, see figure 15E.

5. If necessary, repeat procedure to get a proper relief valve setting.

6. Remove pressure gauge, raise body slightly to be able to store body props and then lower body and tailgate.

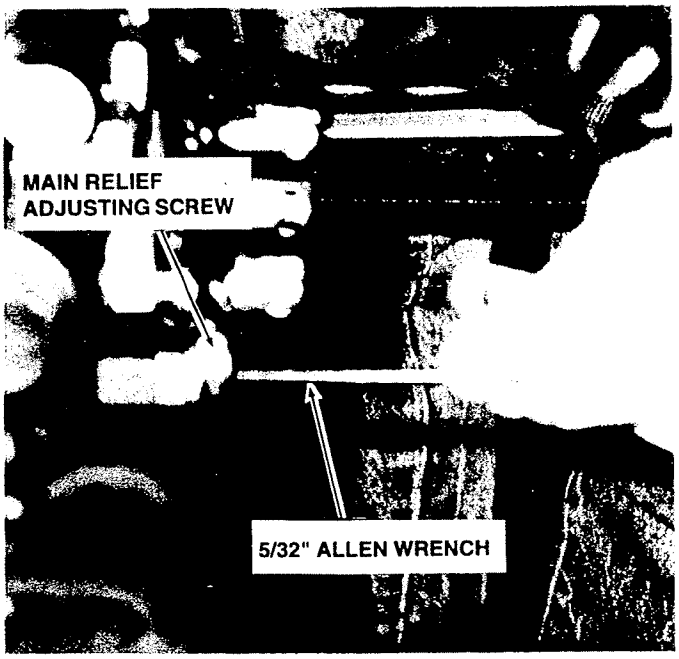


Figure 15E.

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OVERSPEED SWITCH

CONNECTING THE VEHICLE WIRING HARNESS

Black — Ground Wire: This wire should be attached to the truck frame. Caution: Body attachments do not always provide good grounds.

Red — Power Input To 108-4545: Connect this line to the output terminal of the on/off switch controlling the clutch or PTO.

Green — Power Output From 108-4545: (Normally open output): Connect this line to solenoid or clutch coil.

Yellow — RPM Input To 108-4545: Connect this line to alternator 'R' terminal.

White — Overspeed Indicator Light: (Normally closed output); Connect this line to overspeed light.

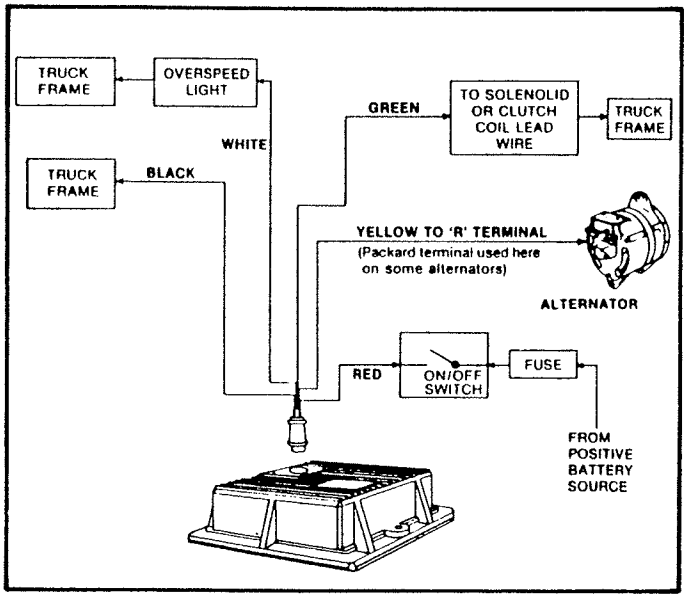


Figure 16.

VEHICLE WIRING HARNESS TEST

1. Place positive (+) lead from voltmeter in the TACH calibration jack and the negative (-) lead to frame. Set on 0-20 vdc scale.
2. Start engine advance engine to 1200 RPM and return to idle.
3. Increase and decrease engine RPM and observe voltmeter. The voltage should increase and decrease with engine speed.
4. Place positive (+) lead from voltmeter in the engage jack. If there is no voltage then unit is not receiving current on the red wire.
5. When the engine is shut off and the PTO/clutch switch is activated the red overspeed light should be on.

Refer to trouble shooting guide if any test fails.

108-4545 SPEED ADJUSTMENT PROCEDURE USING A VOLTMETER.

1. The 108-4545 has test jacks to allow adjustment by use of a voltmeter. The test jack voltages will be in the 0-6 VDC range. Your voltmeter should be on the lowest voltage selection which covers the range. Use the positive meter probe in the test jacks with the negative probe grounded to truck frame.
2. Start the engine, engage the PTO/clutch switch, briefly advance the engine to 1200 RPM and return to idle.
3. The TACH calibration will set the 108-4545's internal tachometer circuit to match the truck's tachometer. This test jack voltage will rise and fall with the engine speed, just as the vehicle's tachometer. Use the adjustment screw to adjust the voltmeter so that the meter displays 1.0 VDC when the truck TACH shows 1000 RPM. The meter should then display 1.5 VDC at 1500 RPM, 2.0 VDC at 2000 RPM, etc.
4. Once you have the RPM set for 1.0 VDC per 1000 RPM you can turn the engine off.
5. Make sure there is power at the 108-4545 (overspeed light should be on). Place the positive lead into the disengage jack. Using the disengage

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adjustment screw adjust the voltmeter so that the display shows your desired disengagement speed based on the relationship that 1.0 VDC=1000 RPM. (Example: a disengage speed of 1800 RPM will show 1.8 VDC on your voltmeter.)

6. Place the positive lead into the engage jack. Using the engage adjustment screw adjust the voltmeter so that the display shows your desired engagement speed based on the relationship that 1.0 VDC=1000 RPM.

NOTE: The DISENGAGE is to be set first, then the ENGAGE. Also, when the engine is running the ENGAGE test jack will show 6 VDC or 6000 RPM when the 108-4545 has engaged the PTO or pump.

ADJUSTMENT PROCEDURE WITHOUT VOLTMETER

CAUTION: DO NOT TAMPER WITH TACH CALIBRATION SCREW ON 108-4545.

Helpful hint: Place a 12V test light into green wire circuit to help you determine when the PTO/clutch is engaged or disengaged.

1. Start engine, engage PTO/clutch switch, briefly advance engine to 1200 RPM and return to idle.
2. With the PTO/clutch on, turn the disengage screw five turns clockwise and the engage screw five turns clockwise.
3. Advance engine to desired disengage speed and hold.
4. Slowly turn disengage screw counter clockwise until the PTO/clutch turns off. The red overspeed light should come on.
5. Reduce the engine speed to the desired engage speed and hold.
6. Slowly turn engage screw clockwise until the PTO/clutch turns back on.

USING THE ET-100 WITH THE 108-4545

If using the ET-100 Electronic Systems Performance Test Set refer to the ET-100 operating instructions.

An additional set of conversion plugs will be required (108-4545-06) to convert an existing ET-100 for use with the 108-4545

RECALIBRATION PROCEDURES

1. Turn 108-4545 TACH calibration screw 22 turns clockwise.
2. Turn disengage screw 15 turns clockwise.
3. Turn engage screw 15 turns clockwise.
4. Follow the adjustment procedures.

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OVERSPEED SWITCH TROUBLESHOOTING GUIDE

PROBLEM	TEST Voltmeter/ET-100	CAUSE	SOLUTION
Unit will not engage and overspeed light not on	No current at red wire /No red light on ET-100	• Blown fuse	• See problem "Blown Fuse"
		• Poor ground connection	• Check crimped and frame connections
		• Reverse polarity	• Interchange red and black leads
		• Connection, splice or harness connection loose	• Check crimped connections. Make sure pin connector is in proper alignment and ring tight.
Unit will not engage and overspeed light always on	Voltage at TACH jack does **not** increase with engine speed	• Alternator not engaged	• Briefly run engine between 1200-1500 RPM
	/No yellow light	• Incorrect alternator terminal	• Contact dealer
		• Poor or loose connection	• Check crimp and connection of brown wire.
	Voltage at TACH jack does increase and decrease with engine speed.	• Poor or loose connection	• Check crimp and connection of green wire
	/Yellow light on	• Unit out of adjustment	• See adjustment procedure
Unit will not disengage	Votage at green wire /Green light always on	• Unit out of adjustment	• See adjustment procedure
		• Faulty 108-4545	• Return for inspection
Intermittent operation	Changes in voltage /Any flashing light	• Poor connection	• Check crimped and ground connections
Blown fuse		• Failed solenoid or clutch coil, shorted output lead, or faulty 108-4545	• Examine wiring and connections necessary for possible short circuits. Check out and replace faulty components.

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PACKER CONTROL BOX TROUBLESHOOTING CHART

SYMPTONS	POSSIBLE CAUSE	POSSIBLE SOLUTION
No packer controls. No light on power button when pulled out.	1. Circuit breaker kicked out	1. Reset circuit breaker
	2. Wires cut, bad connector or bad switch	1. Troubleshoot wiring and connectors as follows (with power button pulled out:) A. Is incoming wire hot to circuit breaker in control box? B. Is other side of power switch hot to terminal strip? 2. From the above, you should be able to tell if: A. broken wire B. bad plug C. bad power switch
	3. Control box not grounded	1. Run ground wire from control box to chassis frame
Power button on, push extend button, packer will not extend	1. Electrical problems	1. Troubleshoot as follows (with power button pulled on:) A. Power to teminal strip in control box hot? B. With start button pushed, is wire (#6) going to LS-2 packer extend switch hot? C. With LS-2 not actuated (in N/C position) is wire (#18) out hot @ LS-2? D. Is wire (#18) hot going into box hot? E. Is wire (#19) hot at extend solenoid?

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PACKER CONTROL BOX TROUBLESHOOTING CHART

SYMPTOMS	POSSIBLE CAUSE	POSSIBLE SOLUTION
Power switch on, press extend button, packer moves but stops once button is released	Electrical problems	From above you should have been able to tell if: A. Extend switch bad B. Wire broken C. LS-2 bad
	Air problem (if you have power to extend solenoid and still will not extend)	1. Troubleshoot as follows: A. Pull off air line going into extend solenoid (air should come out of hose) B. Re-install inlet air C. With power to extend solenoid, pull air line from outlet side of solenoid (air should come out of hose) D. Insure that the air line is not kinked going to the control valve 2. From the above you should be able to determine if: A. Trouble with inlet air B. Solenoid bad C. Air lines kinked D. Air to valve spool actuator 3. If air is to valve spool actuator (cylinder on control valve:) A. Pull opposite air line off air actuator I. If air comes thru cylinder - bad seals in actuator II. Is air pressure high enough to shift spool 60-80 PSI? III. Air comes out other line too. Both extend and retract circuits actuated at same time. Trouble shoot electrical circuit
	Hydraulic problems	1. If air to actuator, is spool stuck? 2. Are packer cylinders bypassing?
Power switch on, press extend button, packer moves but stops once button is released	Electrical	1. Test the following with power switch on and extend switch pushed in: A. At CR2 is terminal #3 hot? I. You should be able to determine if: - packer LS-2 (extend switch) bad - CR2 bad - Start switch in box is bad

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GENERAL UNIT TROUBLESHOOTING

TROUBLE	PROBABLE CAUSE	REMEDY
Top door will not open	1. PTO or pump not engaged	1. Engage PTO or pump
	2. Control valve spool not shifting	2. See sticking plungers
	3. Top door cylinder faulty	3. Repair/replace cylinder
	4. Binding	4. Locate bind and repair
	5. Relief valve faulty	5. Repair/replace valve
Top door will not close	1. Mechanical bind	1. Locate bind and repair
	2. Relief valve faulty	2. Repair/replace valve
Packer will not complete cycle	1. Maximum compaction achieved	1. Retract packer panel
	2. Body capacity achieved	2. Eject payload
	3. Control valve spool not shifting	3. See sticking plungers
	4. Mechanical binding	4. Locate and repair
	5. Autopack switches out of adjustment or faulty	5. Adjust or replace switches
Unable to move plunger in or out	1. Dirt in valve	1. Clean and flush out
	2. Plunger cap full of oil	2. Replace seals
	3. Bind in cable	3. Free up cable

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GENERAL UNIT TROUBLESHOOTING

TROUBLE	PROBABLE CAUSE	REMEDY
Sticking plungers	• Excessive high oil temperature • Dirt in oil • Valve warped from mounting • Excessive high pressure in valve • Plunger bent • Return spring damaged • Spring or spool cap binding	• Eliminate restriction in hydraulic lines and filtering • Change oil/clean system • Loosen valve and check • Check with gauge on inlet and cylinder lines • Replace valve • Replace faulty parts • Loosen cap, re-center and tighten
Leaking seals	• Paint on or under seal • Excessive back pressure • Dirt under seal • Scored plunger • Loose seal plates • Cut or scored seal	• Remove and clean • Open line to reservoir • Remove and clean • Replace valve • Clean and tighten • Replace faulty parts
Poor hydraulic system performance or failure	• Defective pump • Dirt in relief valve • Relief valve defective • Worn cylinders • Load too heavy in bucket • Internal valve crack • Plunger not at full stroke • Reservoir low on oil • System filter clogged • Line restricted	• Check pressure and repair/replace • Disassemble and clean • Check as per instructions • Repair or replace • Reduce load • Replace valve • Check movement and lilkage • Add oil • Replace filter • Check lines
Tailgate will not raise or lower	• PTO or pump not engaged • Control valve spool not shifting • Cylinder faulty • Mechanical binding • Relief vavle faulty	• Engage PTO or pump • See sticking plungers • Repair/replace cylinder • Locate bind and repair • Repair/replace valve

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GENERAL PUMP TROUBLESHOOTING

Possible Pump Trouble	Cause	Cure
Cavitation: noisy pump **Use vacuum gauge to isolate problem.**	Low oil supply. Heavy oil/cold oil/wrong oil Dirty suction strainer. Suction line too small. Restriction in suction line.	Fill to proper level. Change to proper oil Clean and replace. Increase size. Remove/replace
Pump takes too long to respond or fails to respond	Low oil supply Insufficient relief valve pressure. Pump worn or damaged.	Fill to proper level. Use gauge to reset pressure Repair or replace.
Oil Heating Up	Contamination in relief valve. Oil too light. Dirty oil. Oil level too low. Reservoir capacity too small. Insufficient relief valve pressure or pressure too high. Pump slippage	Remove. Drain and refill with proper oil Drain, flush, refill with clean oil. Fill to proper level. Install oil cooler. Use gauge to reset pressure Repair or replace.
Oil Foaming	Air leaking into suction line from tank to pump. Wrong kind of oil. Oil too low. Improper tank or reservoir baffle. Return line above oil level.	Tighten all connections. Drain & refill w/non-foaming oil. Fill to proper level. Baffle correctly. Install below oil level.

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HEX HEAD CAPSCREWS
Suggested Assembly Torques in: Foot-Pounds (Inch-pounds)

DIA.	TPI	SAE GRADE 5 DRY THREADS	SAE GRADE 5 LUBRICATED THREADS	GRADE 8 DRY THREADS	GRADE 8 LUBRICATED THREADS
1/4	20	9 † (108)	5 † (60)	12 † (144)	7 † (84)
	28	10 † (120)	6 † (72)	14 † (168)	9 † (108)
5/16	18	17 † (205)	10 † (120)	25 † (300)	15 † (180)
	24	20 † (240)	12 † (144)	27 † (325)	17 † (205)
3/8	16	31 † (370)	19 † (230)	44 † (540)	26 † (310)
	24	35 † (420)	21 † (250)	49 † (590)	30 † (360)
7/16	14	50 † (600)	30 † (360)	70	42 † (505)
	20	56	33 † (395)	78	47 † (565)
1/2	13	75	45 † (540)	107	64
	20	85	51 † (610)	120	72
9/16	12	110	66	154	92
	18	120	72	171	102
5/8	11	150	90	212	127
	18	170	100	240	144
3/4	10	265	160	376	226
	16	300	180	420	252
7/8	9	430	260	606	364
	14	475	285	668	400
1	8	645	390	909	545
	14	720	435	995	597
1-1/8	7	800	480	1288	773
	12	900	540	1444	866
1-1/4	7	1120	670	1817	1090
	12	1240	745	2012	1207
1-3/8	6	1470	880	2382	1430
	12	1670	1000	2712	1627
1-1/2	6	1950	1170	3161	1897
	12	2200	1320	3557	2134

† Installation with an inch pound torque wrench is recommended. The inch pound torque value is listed in parenthesis.

These specifications are the recommended assembly torques for threaded fasteners with the following qualifications:

1. All torque values shown are for turning the NUT while holding the head of the bolt with a wrench. If the application demands tightening by the bolt head, increase the value shown by 20% (multiply by 1.20). This will allow for the natural torsional twist of the bolt shank.

2. Torque values are calculated at 75% of proof load. This provides a safety factor.

3. All dry torque values are given for the "as received" condition: such as plated hex head capscrews.

4. All torque values are based on the use of through hardened flat washers under the bolt head and nut or only under the bolt head in a taped hole application. Thisprovides a uniform hard, smooth bearing surface.

5. Lubricated torque values are calculated based on apply anti-seize compound to the threads before assembly.

ISSUED JANUARY 1996

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PREVAILING TORQUE TYPE NUTS
Suggested Assembly Torques in: Foot-pounds (Inch-pounds)

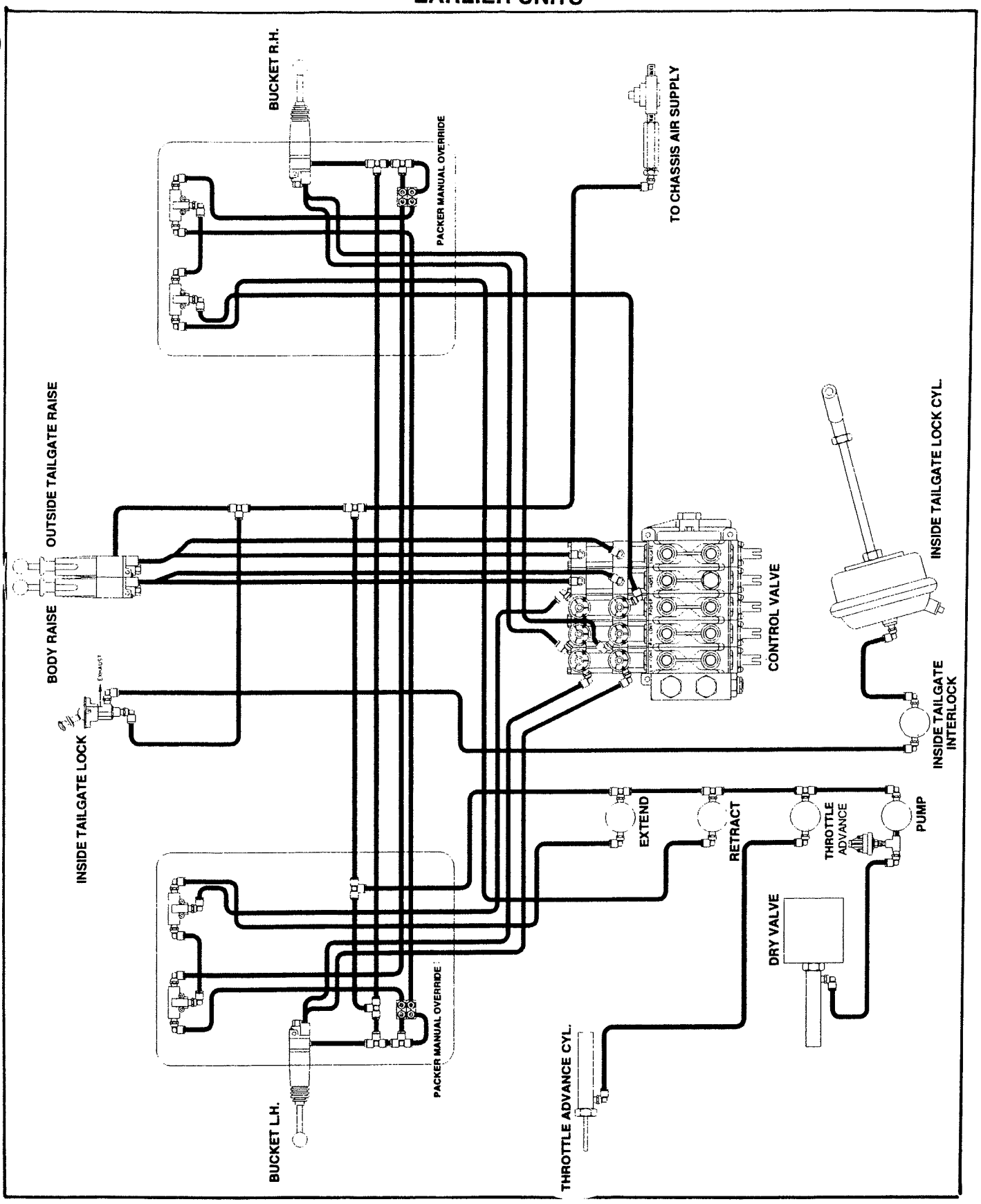
DIA	SAE GRADE 5	GRADE 8
1/4	4 † (48)	6 † (72)
5/16	9 † (108)	12 † (144)
3/8	15 † (180)	22 † (265)
7/16	25 † (300)	35 † (420)
1/2	38 † (455)	53 † (635)
9/16	54 † (650)	77
5/8	75	106
3/4	133	188
7/8	197	303
1	295	455
1-1/8	397	644
1-1/4	560	908
1-3/8	734	1190
1-1/2	975	1580

NOTE: Nuts are prelubricated. Do not assemble with impact wrenches as thread damage may occur. Values given are for both coarse and fine thread.

† Installation with an inch-pound torque wrench is recommended. The inch-pound torque value is listed in parenthesis.

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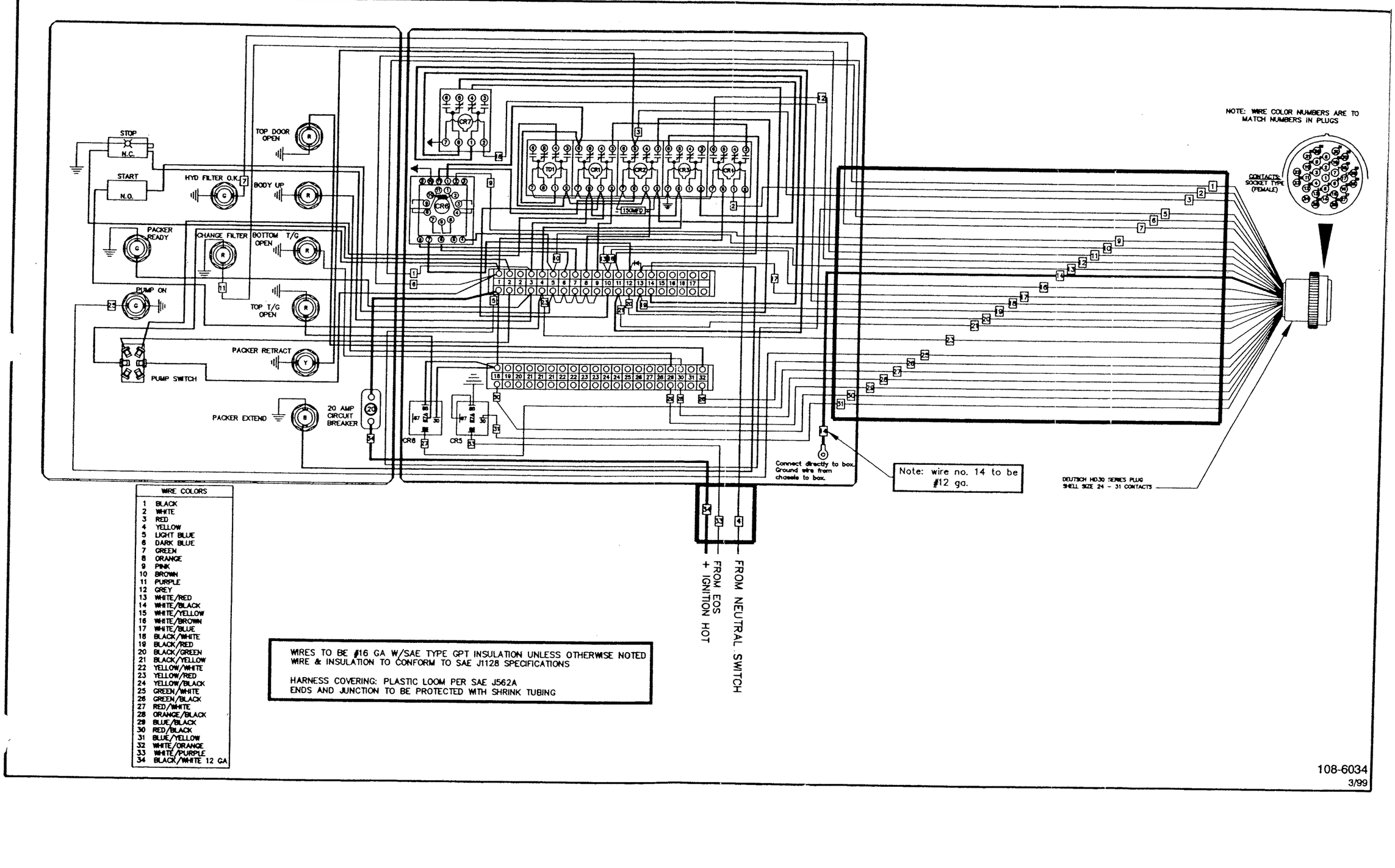
RECYCLE UNIT
AIR SYSTEM for EARLIER UNITS



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ISSUED JANUARY 1996

CONTROL BOX WIRING
UNITS SERIAL NUMBER 1192 THRU 1468



WIRE COLORS	
1	BLACK
2	WHITE
3	RED
4	YELLOW
5	LIGHT BLUE
6	DARK BLUE
7	GREEN
8	ORANGE
9	PINK
10	BROWN
11	PURPLE
12	GREY
13	WHITE/RED
14	WHITE/BLACK
15	WHITE/YELLOW
16	WHITE/BROWN
17	WHITE/BLUE
18	BLACK/WHITE
19	BLACK/RED
20	BLACK/GREEN
21	BLACK/YELLOW
22	YELLOW/WHITE
23	YELLOW/RED
24	YELLOW/BLACK
25	GREEN/WHITE
26	GREEN/BLACK
27	RED/WHITE
28	ORANGE/BLACK
29	BLUE/BLACK
30	RED/BLACK
31	BLUE/YELLOW
32	WHITE/ORANGE
33	WHITE/PURPLE
34	BLACK/WHITE 12 GA

WIRES TO BE #16 GA W/SAE TYPE GPT INSULATION UNLESS OTHERWISE NOTED
WIRE & INSULATION TO CONFORM TO SAE J1128 SPECIFICATIONS

HARNESS COVERING: PLASTIC LOOM PER SAE J562A
ENDS AND JUNCTION TO BE PROTECTED WITH SHRINK TUBING

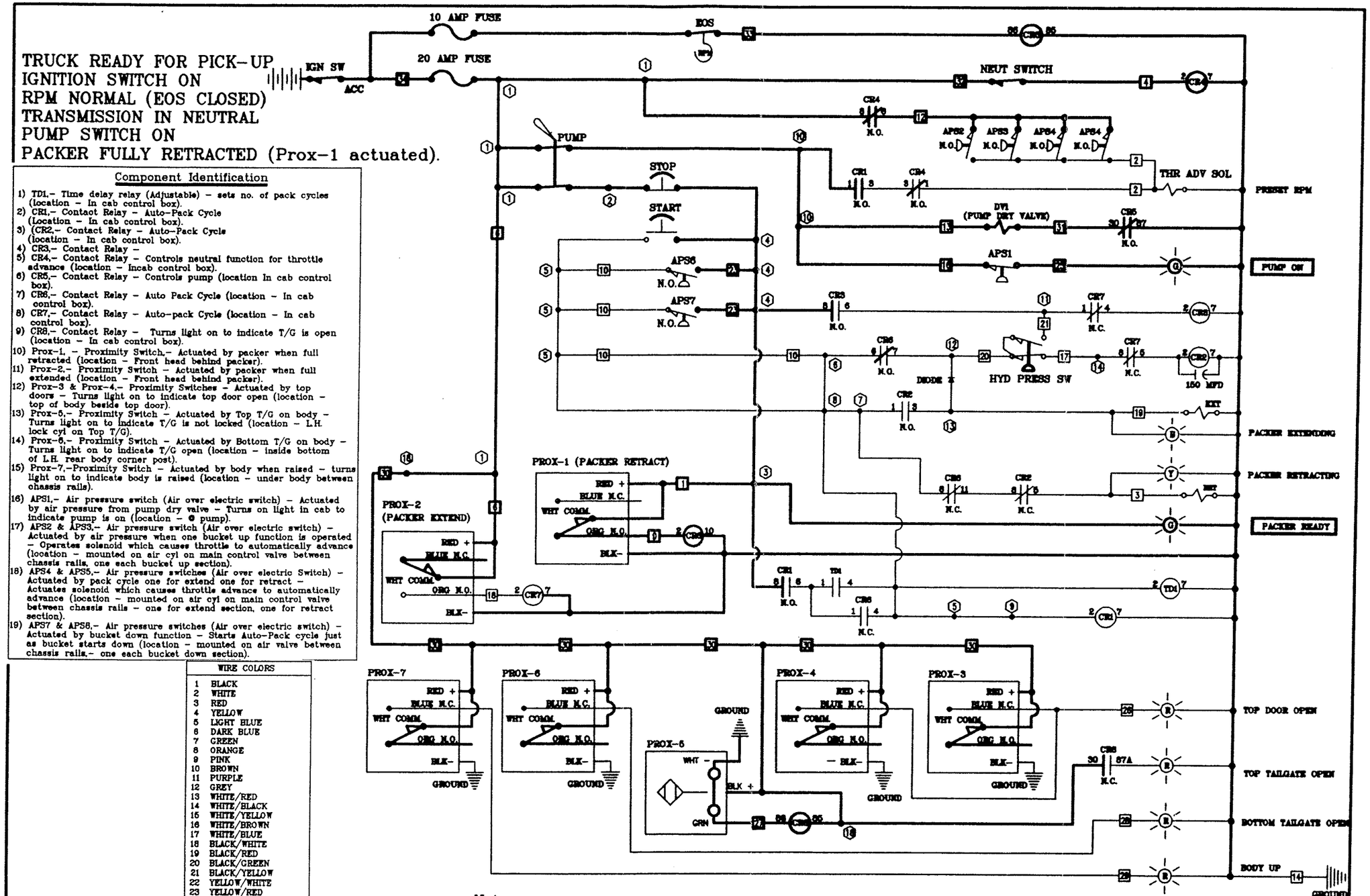
108-6034
3/99

TRUCK READY FOR PICK-UP
IGNITION SWITCH ON
RPM NORMAL (EOS CLOSED)
TRANSMISSION IN NEUTRAL
PUMP SWITCH ON
PACKER FULLY RETRACTED (Prox-1 actuated).

Component Identification

1) TD1,- Time delay relay (Adjustable) - sets no. of pack cycles (location - In cab control box).
2) CR1,- Contact Relay - Auto-Pack Cycle (Location - In cab control box).
3) (CR2,- Contact Relay - Auto-Pack Cycle (location - In cab control box).
4) CR3,- Contact Relay -
5) CR4,- Contact Relay - Controls neutral function for throttle advance (location - Incab control box).
6) CR5,- Contact Relay - Controls pump (location In cab control box).
7) CR6,- Contact Relay - Auto Pack Cycle (location - In cab control box).
8) CR7,- Contact Relay - Auto-pack Cycle (location - In cab control box).
9) CR8,- Contact Relay - Turns light on to indicate T/G is open (location - In cab control box).
10) Prox-1, - Proximity Switch,- Actuated by packer when full retracted (location - Front head behind packer).
11) Prox-2,- Proximity Switch - Actuated by packer when full extended (location - Front head behind packer).
12) Prox-3 & Prox-4,- Proximity Switches - Actuated by top doors - Turns light on to indicate top door open (location - top of body beside top door).
13) Prox-5,- Proximity Switch - Actuated by Top T/G on body - Turns light on to indicate T/G is not locked (location - L.H. lock cyl on Top T/G).
14) Prox-6,- Proximity Switch - Actuated by Bottom T/G on body - Turns light on to indicate T/G open (location - inside bottom of L.H. rear body corner post).
15) Prox-7,-Proximity Switch - Actuated by body when raised - turns light on to indicate body is raised (location - under body between chassis rails).
16) APS1,- Air pressure switch (Air over electric switch) - Actuated by air pressure from pump dry valve - Turns on light in cab to indicate pump is on (location - ⊕ pump).
17) APS2 & APS3,- Air pressure switch (Air over electric switch) - Actuated by air pressure when one bucket up function is operated - Operates solenoid which causes throttle to automatically advance (location - mounted on air cyl on main control valve between chassis rails, one each bucket up section).
18) APS4 & APS5,- Air pressure switches (Air over electric Switch) - Actuated by pack cycle one for extend one for retract - Actuates solenoid which causes throttle advance to automatically advance (location - mounted on air cyl on main control valve between chassis rails - one for extend section, one for retract section).
19) APS7 & APS8,- Air pressure switches (Air over electric switch) - Actuated by bucket down function - Starts Auto-Pack cycle just as bucket starts down (location - mounted on air valve between chassis rails,- one each bucket down section).

WIRE COLORS	
1	BLACK
2	WHITE
3	RED
4	YELLOW
5	LIGHT BLUE
6	DARK BLUE
7	GREEN
8	ORANGE
9	PINK
10	BROWN
11	PURPLE
12	GREY
13	WHITE/RED
14	WHITE/BLACK
15	WHITE/YELLOW
16	WHITE/BROWN
17	WHITE/BLUE
18	BLACK/WHITE
19	BLACK/RED
20	BLACK/GREEN
21	BLACK/YELLOW
22	YELLOW/WHITE
23	YELLOW/RED
24	YELLOW/BLACK
25	GREEN/WHITE
26	GREEN/BLACK
27	RED/WHITE
28	ORANGE/BLACK
29	BLUE/BLACK
30	RED/BLACK
31	BLUE/YELLOW
32	WHITE/ORANGE
33	WHITE/PURPLE
34	BLACK/WHITE 12 GA



Notes:

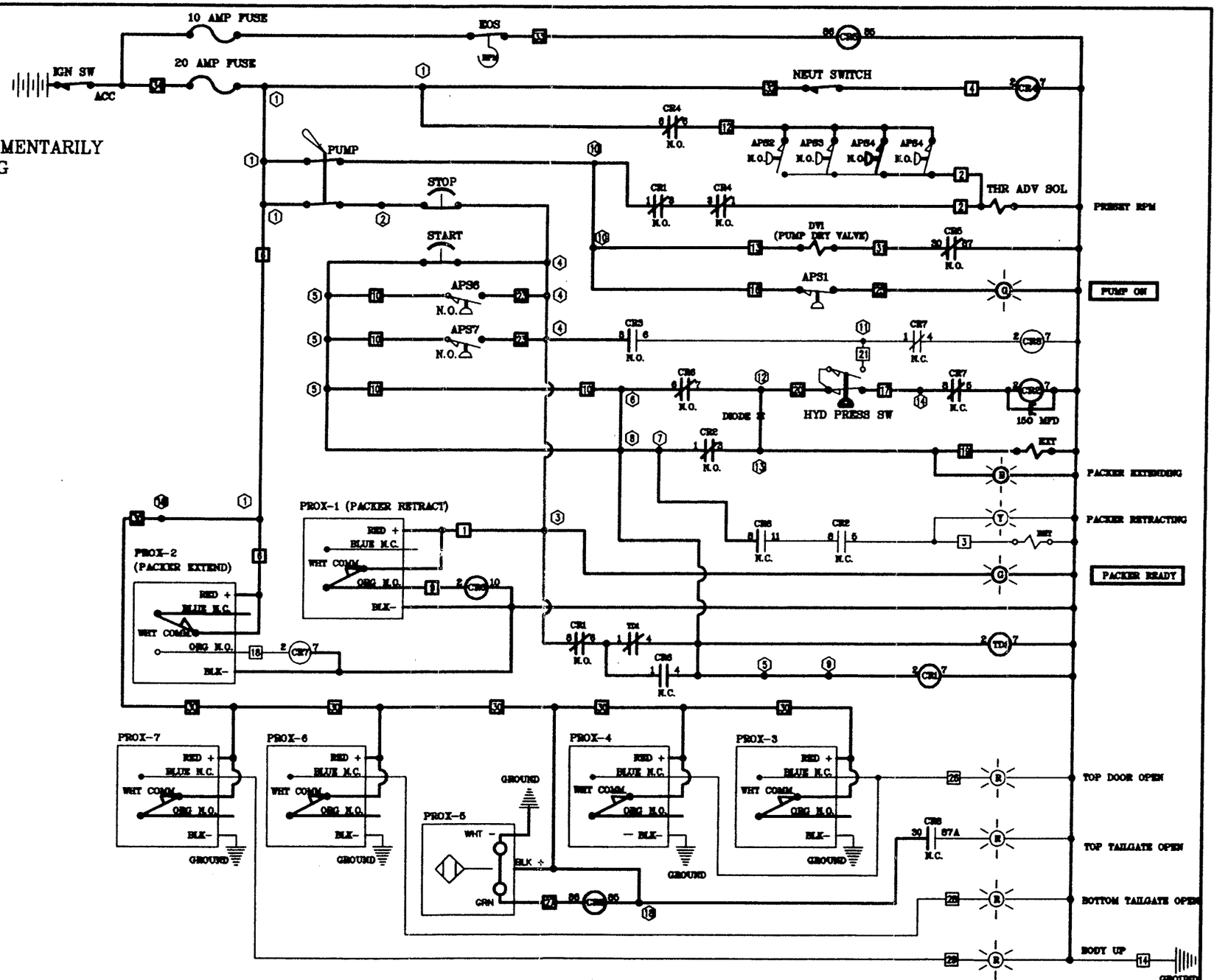
⬡ This symbol indicates terminal number in cab control box.

□ This symbol indicates color of wire in wiring harness.

701-7615-001

PACK BUTTON PUSHED MOMENTARILY
PACKER STARTS EXTENDING

WIRE COLORS	
1	BLACK
2	WHITE
3	RED
4	YELLOW
5	LIGHT BLUE
6	DARK BLUE
7	GREEN
8	ORANGE
9	PINK
10	BROWN
11	PURPLE
12	GREY
13	WHITE/RED
14	WHITE/BLACK
15	WHITE/YELLOW
16	WHITE/BROWN
17	WHITE/BLUE
18	BLACK/WHITE
19	BLACK/RED
20	BLACK/GREEN
21	BLACK/YELLOW
22	YELLOW/WHITE
23	YELLOW/RED
24	YELLOW/BLACK
25	GREEN/WHITE
26	GREEN/BLACK
27	RED/WHITE
28	ORANGE/BLACK
29	BLUE/BLACK
30	RED/BLACK
31	BLUE/YELLOW
32	WHITE/ORANGE
33	WHITE/PURPLE
34	BLACK/WHITE 12 GA



701-7615-002

PACK BUTTON RELEASED AFTER PACKER
EXTENDS SLIGHTLY, RELEASING PROX-1
CR6 NOT ENERGIZED
TIMER CYCLE HAS STARTED

WIRE COLORS	
1	BLACK
2	WHITE
3	RED
4	YELLOW
5	LIGHT BLUE
6	DARK BLUE
7	GREEN
8	ORANGE
9	PINK
10	BROWN
11	PURPLE
12	GREY
13	WHITE/RED
14	WHITE/BLACK
15	WHITE/YELLOW
16	WHITE/BROWN
17	WHITE/BLUE
18	BLACK/WHITE
19	BLACK/RED
20	BLACK/GREEN
21	BLACK/YELLOW
22	YELLOW/WHITE
23	YELLOW/RED
24	YELLOW/BLACK
25	GREEN/WHITE
26	GREEN/BLACK
27	RED/WHITE
28	ORANGE/BLACK
29	BLUE/BLACK
30	RED/BLACK
31	BLUE/YELLOW
32	WHITE/ORANGE
33	WHITE/PURPLE
34	BLACK/WHITE 12 GA

701-7615-003

PACKER FULLY EXTENDED, PROX-2 ACTUATED
RELAY CR2 DEENERGIZED
PACKER STARTS RETRACTING

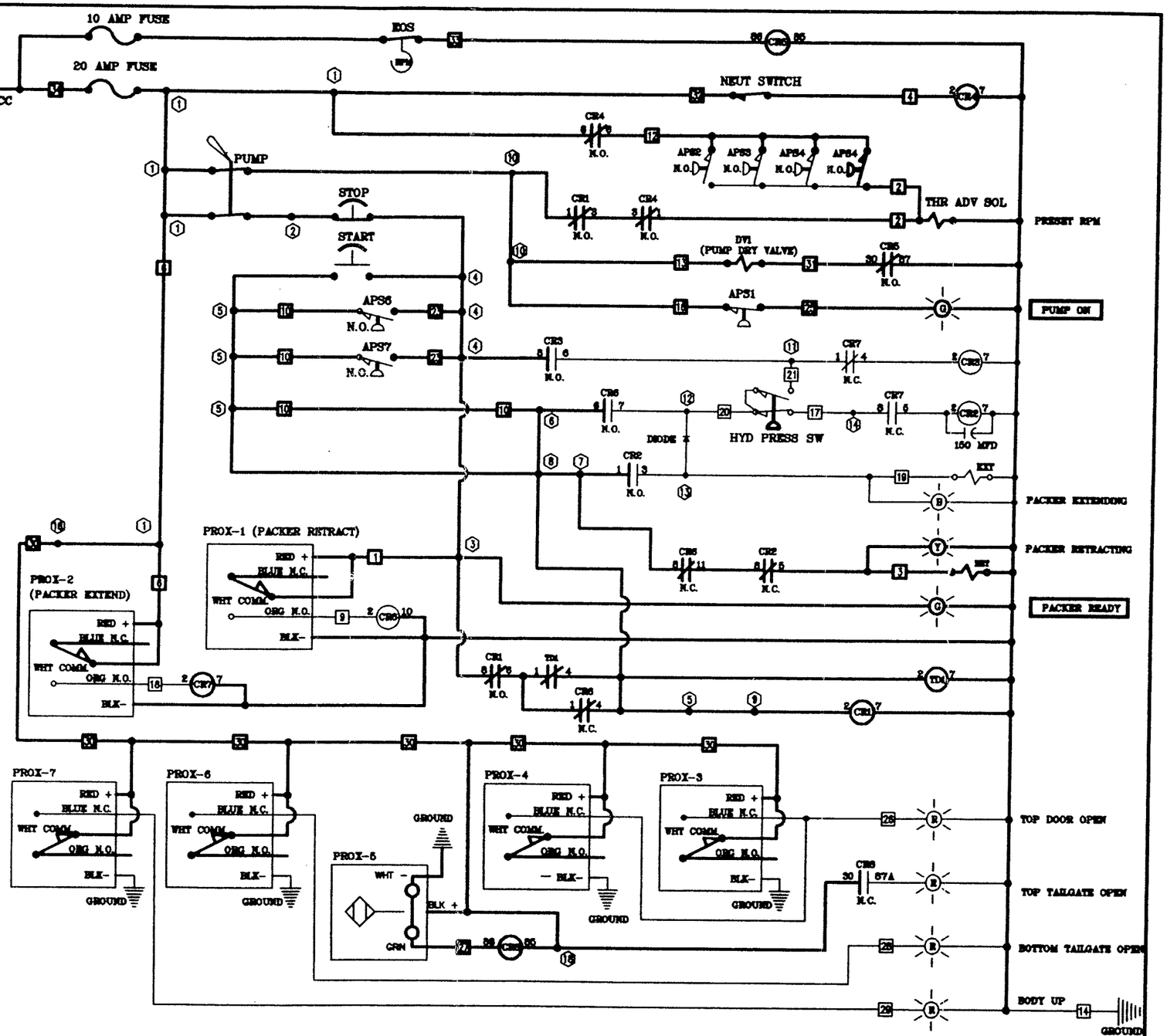
WIRE COLORS	
1	BLACK
2	WHITE
3	RED
4	YELLOW
5	LIGHT BLUE
6	DARK BLUE
7	GREEN
8	ORANGE
9	PINK
10	BROWN
11	PURPLE
12	GREY
13	WHITE/RED
14	WHITE/BLACK
15	WHITE/YELLOW
16	WHITE/BROWN
17	WHITE/BLUE
18	BLACK/WHITE
19	BLACK/RED
20	BLACK/GREEN
21	BLACK/YELLOW
22	YELLOW/WHITE
23	YELLOW/RED
24	YELLOW/BLACK
25	GREEN/WHITE
26	GREEN/BLACK
27	RED/WHITE
28	ORANGE/BLACK
29	BLUE/BLACK
30	RED/BLACK
31	BLUE/YELLOW
32	WHITE/ORANGE
33	WHITE/PURPLE
34	BLACK/WHITE 12 GA

10 AMP FUSE
20 AMP FUSE
IGN SW
ACC
EOS
NEUT SWITCH
PUMP
STOP
START
CR4
APS2
APS3
APS4
APS4
THR ADV SOL
PRESET RPM
CR1
CR4
DV1
(PUMP DRT VALVE)
CR5
APS1
PUMP ON
APS6
APS7
CR3
CR7
CR6
DIODE
HYD PRESS SW
CR2
150 MFD
EXT
PACKER EXTENDING
RET
PACKER RETRACTING
PACKER READY
PROX-1 (PACKER RETRACT)
PROX-2
(PACKER EXTEND)
RED +
BLUE N.C.
WHT COMM.
ORG N.O.
BLK-
TD1
TD2
CR
PROX-7
PROX-6
PROX-5
PROX-4
PROX-3
GROUND
WHT -
BLK +
GRN
TOP DOOR OPEN
TOP TAILGATE OPEN
BOTTOM TAILGATE OPEN
BODY UP

701-7615-004

PACKER CONTINUES TO RETRACT
PROX-2 RELEASED
CR7 NOT ACTUATED

WIRE COLORS	
1	BLACK
2	WHITE
3	RED
4	YELLOW
5	LIGHT BLUE
6	DARK BLUE
7	GREEN
8	ORANGE
9	PINK
10	BROWN
11	PURPLE
12	GREY
13	WHITE/RED
14	WHITE/BLACK
15	WHITE/YELLOW
16	WHITE/BROWN
17	WHITE/BLUE
18	BLACK/WHITE
19	BLACK/RED
20	BLACK/GREEN
21	BLACK/YELLOW
22	YELLOW/WHITE
23	YELLOW/RED
24	YELLOW/BLACK
25	GREEN/WHITE
26	GREEN/BLACK
27	RED/WHITE
28	ORANGE/BLACK
29	BLUE/BLACK
30	RED/BLACK
31	BLUE/YELLOW
32	WHITE/ORANGE
33	WHITE/PURPLE
34	BLACK/WHITE 12 GA



701-7615-005

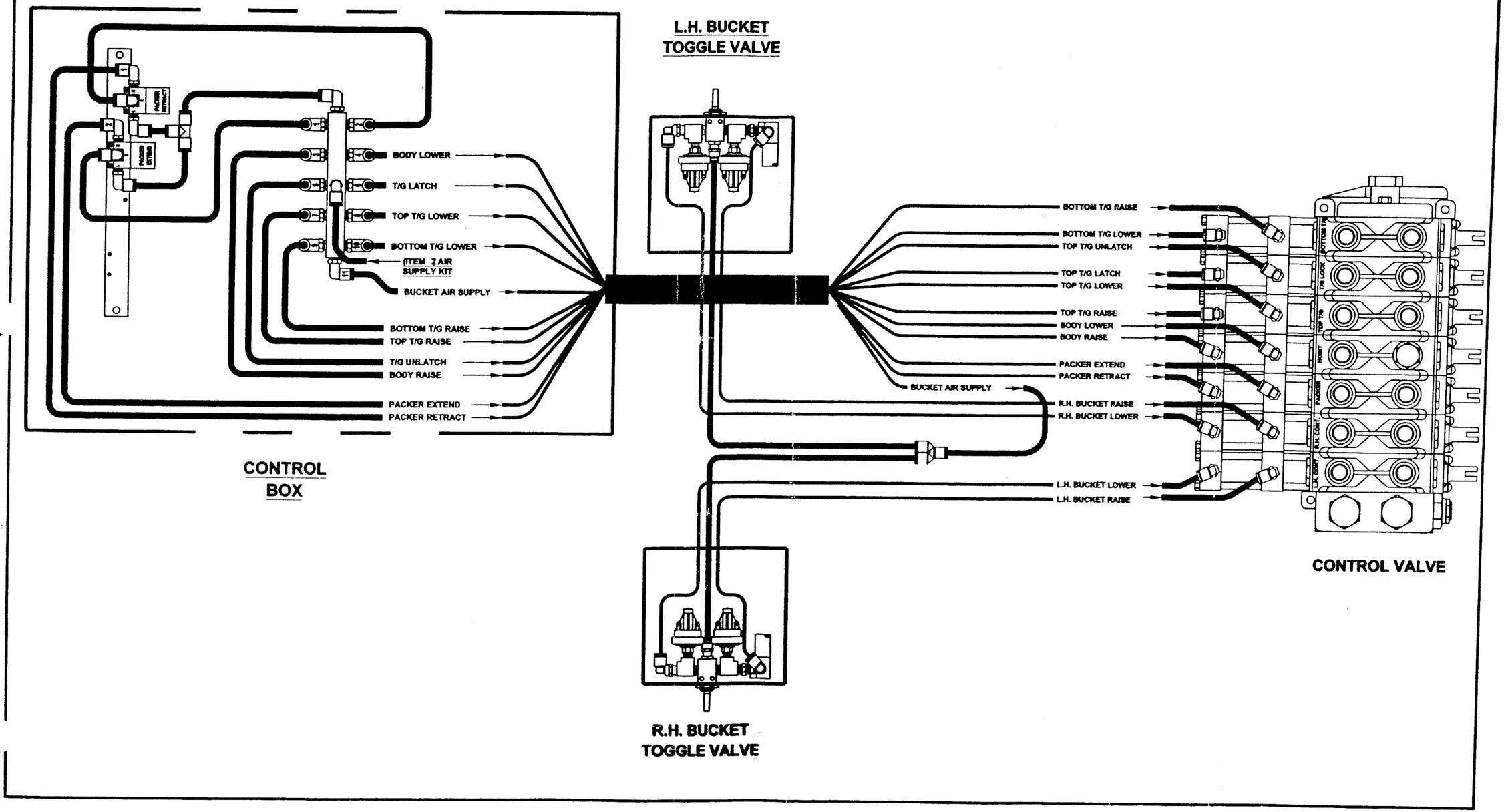
PACKER FULLY RETRACTED, PROX-1 ACTUATED
PACK CYCLE STOPS IF
TIMER HAS EXPIRED

WIRE COLORS	
1	BLACK
2	WHITE
3	RED
4	YELLOW
5	LIGHT BLUE
6	DARK BLUE
7	GREEN
8	ORANGE
9	PINK
10	BROWN
11	PURPLE
12	GREY
13	WHITE/RED
14	WHITE/BLACK
15	WHITE/YELLOW
16	WHITE/BROWN
17	WHITE/BLUE
18	BLACK/WHITE
19	BLACK/RED
20	BLACK/GREEN
21	BLACK/YELLOW
22	YELLOW/WHITE
23	YELLOW/RED
24	YELLOW/BLACK
25	GREEN/WHITE
26	GREEN/BLACK
27	RED/WHITE
28	ORANGE/BLACK
29	BLUE/BLACK
30	RED/BLACK
31	BLUE/YELLOW
32	WHITE/ORANGE
33	WHITE/PURPLE
34	BLACK/WHITE 12 GA

10 AMP FUSE
20 AMP FUSE
EOS
IGN SW
ACC
NEUT SWITCH
PUMP
STOP
START
APS6
APS7
APS1
APS2
APS3
APS4
APS5
CR1
CR2
CR3
CR4
CR5
CR6
CR7
DV1 (PUMP DRY VALVE)
THR ADV SOL
PRESET RPM
PUMP ON
HYD PRESS SW
DIODE
150 MFD
EXT
RET
PACKER EXTENDING
PACKER RETRACTING
PACKER READY
PROX-1 (PACKER RETRACT)
PROX-2 (PACKER EXTEND)
PROX-3
PROX-4
PROX-5
PROX-6
PROX-7
TD1
TOP DOOR OPEN
TOP TAILGATE OPEN
BOTTOM TAILGATE OPEN
BODY UP
GROUND

701-7615-006

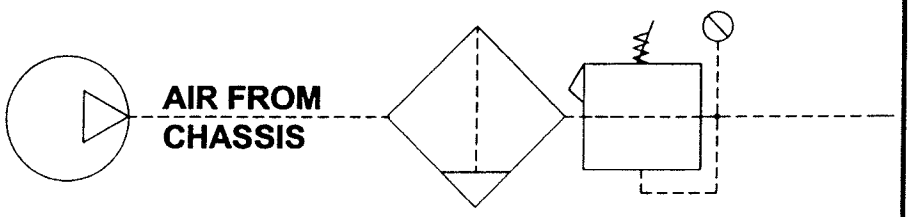
PNEUMATIC (AIR) INSTALLATION for
UNITS SERIAL NUMBER 1469 and AFTER
272-9064



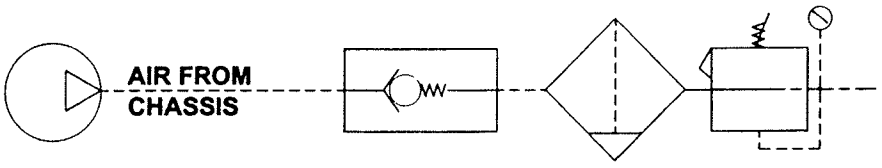
RECYCLE 2000

AIR SUPPLY KITS
PNEUMATIC DIAGRAMS
272-7464

272-7464-02



272-7464-01, 272-7464-03



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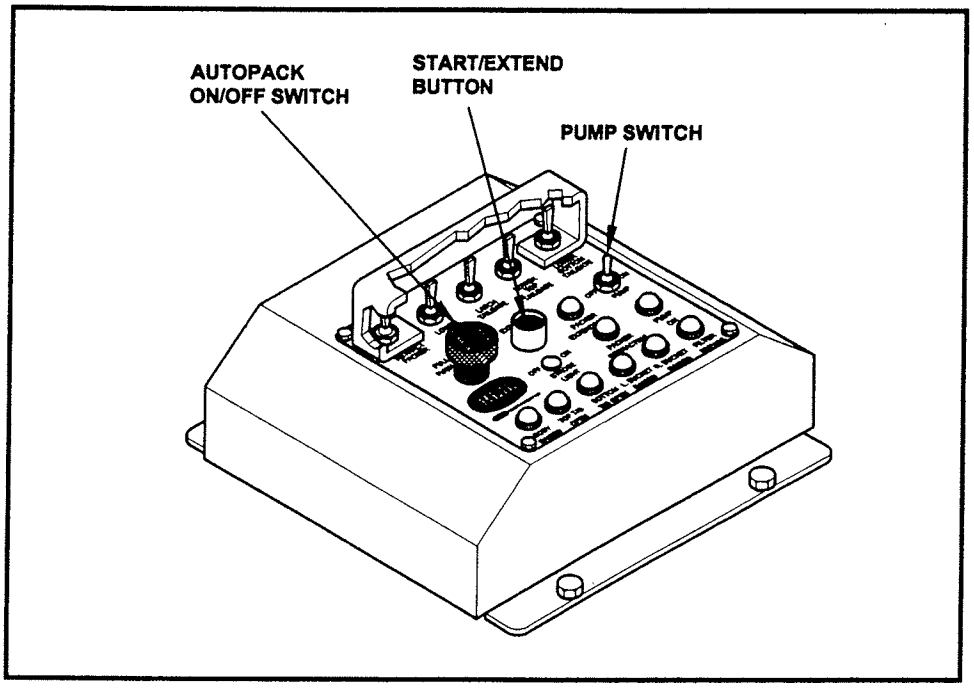
(PLC) ELECTRONIC CONTROL SELF-DIANOSTIC WARNING BEEPER CODE

ELECTRONIC CONTROLS SELF-DIAGNOSTIC WARNING BEEP CODE 212-2426-001	
BEEP COUNT	DEFINITION OF WARNINGS OR FAULT CONDITIONS
1	PUMP INTERUPTED BY ENGINE OVERSPEED.
2	AUTO-PACK ENABLE SWITCH IS TURNED OFF.
3	PUMP INTERUPTED BY FILTER BYPASS SYSTEM TURN THE PUMP SWITCH OFF THEN ON AGAIN TO ALLOW A 3 MIN. GRACE PERIOD.
4	FILTER BYPASS SENSOR FAULT LOSS OF SIGNAL FROM SENSOR WHILE THE HYD. PUMP WAS DISENGAGED.
5	BUCKET RAISED WITH TRANS. IN GEAR.
6	ENGINE SPEED NOT DETECTED LOSS OF ALTERNATOR R STATOR SIGNAL. PUMP OPERATION IS ALLOWED, IN 3 MIN INTERVALS. RESET BY TURNING THE PUMP SWITCH OFF THEN ON AGAIN.
7	FULL EXTEND PROX FAULT PACKER PROX SWITCH SIGNAL NOT DETECTED WITHIN ALLOTED TIME. RESETS WHEN SIGNAL IS RESTORED OR AUTO PACK ENABLE IS TURNED OFF THEN ON AGAIN.
8	FULL RETRACT PROX FAULT PACKER PROX SWITCH SIGNAL NOT DETECTED WITHIN ALLOTED TIME. RESETS WHEN SIGNAL IS RESTORED OR AUTO-PACK ENABLE IS TURNED OFF THEN ON AGAIN.
9	PACKER PRESSURE SWITCH FAULT LOSS OF SIGNAL FROM SENSOR WITH AUTO-PACK EXTEND FUNCTION DISENGAGED.
10	PACKER PROX SWITCH FAULT DETECTED FULL EXTEND AND FULL RETRACT PROX SWITCH SIGNALS SIMULTANEOUSLY. RESET BY TURNING AUTO-PACK ENABLE OFF THEN ON AGAIN.
11	BUCKET SWITCH FAULT BUCKET DOWN PROX SIGNAL DETECTED WHILE THE BUCKET THROTTLE ADV. PRESSURE INDICATED THE BUCKET WAS BEING RAISED. RESET BY TURNING AUTO-PACK ENABLE OFF THEN ON AGAIN.

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AUTOPACK CYCLE COUNT SETTING



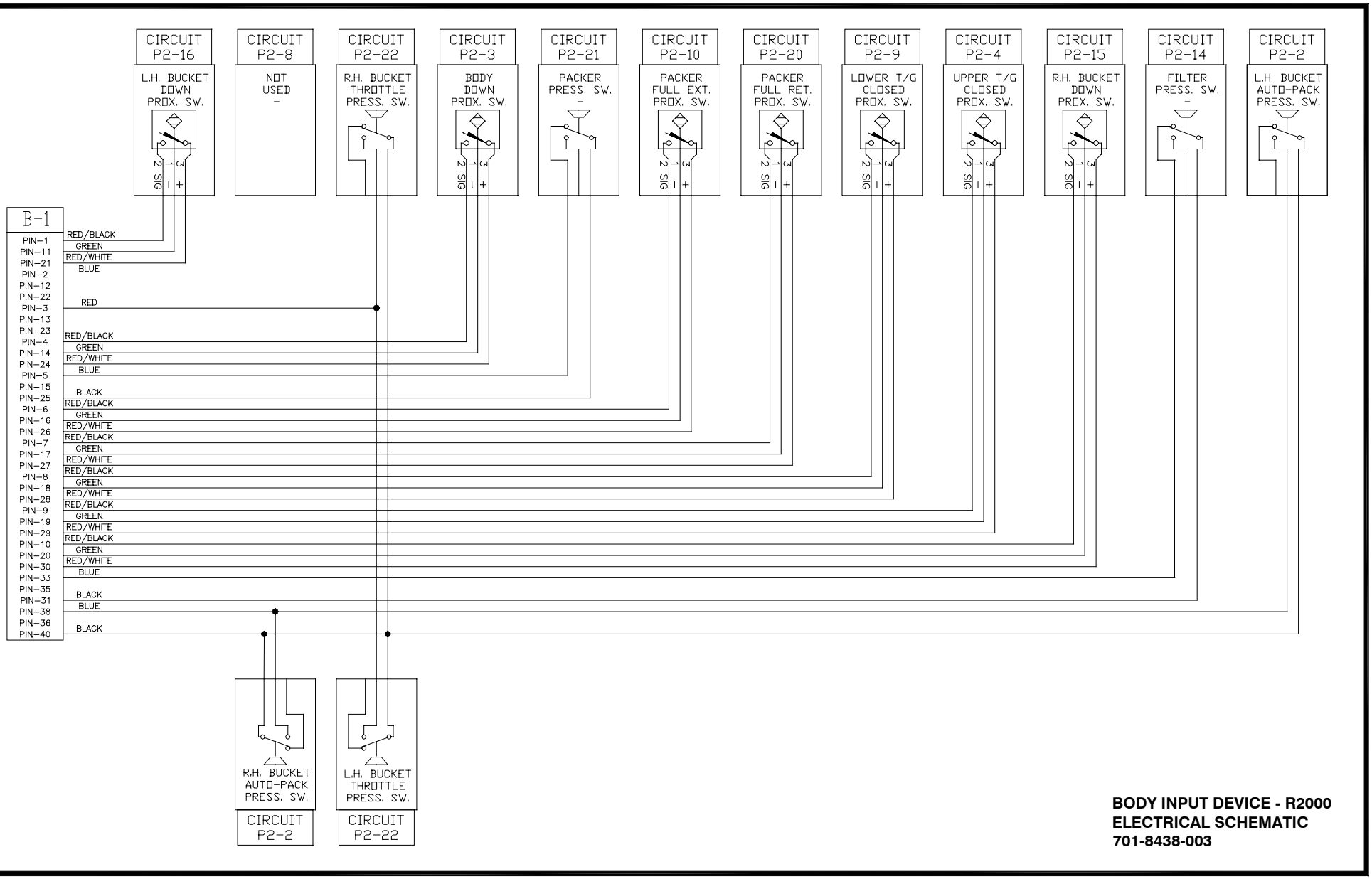
AUTO-PACK CYCLE COUNT SETTING INSTRUCTIONS

212-2426-002

SET AUTO-PACK TO CYCLE ONCE		SET TO MULTIPLE CYCLES (MAX. OF 4)	
1.	TURN THE AUTO-PACK ENABLE SWITCH ON.	1.	TURN THE AUTO-PACK ENABLE SWITCH ON.
2.	TURN THE PUMP SWITCH OFF.	2.	TURN THE PUMP SWITCH OFF.
3.	PRESS AND HOLD THE EXTEND SWITCH FOR 7.5 SECONDS. (THE BEEPER WILL BEGIN TO SOUND AT 5 AND STOP AT 7.5 SECONDS.)	3.	PRESS AND HOLD THE EXTEND SWITCH. WHEN THE BEEPER SOUNDS ON THE 5TH SECOND, RELEASE IMMEDIATLLY. (1 CYCLE WILL BE ADDED)
4.	RELEASE THE EXTEND SWITCH.	4.	FOR EACH ADDITIONAL ACTIVATION OF THE EXTEND SWITCH A BEEP WILL SOUND AND 1 ADDITIONAL CYCLE WILL BE ADDED WITH A MAX. OF 4 CYCLES PER AUTO-PACK.
5.	TURN THE PUMP SWITCH ON TO STORE THE COUNT IN MEMORY.	5.	TURN THE PUMP SWITCH ON TO STORE THE COUNT IN MEMORY.
6.	OPERATE THE AUTO-PACK. (THE PACKER WILL CYCLE ONCE THEN STOP.)	6.	OPERATE THE AUTO-PACK. (THE PACKER SHOULD CYCLE THE SELECTED NUMBER OF TIMES)

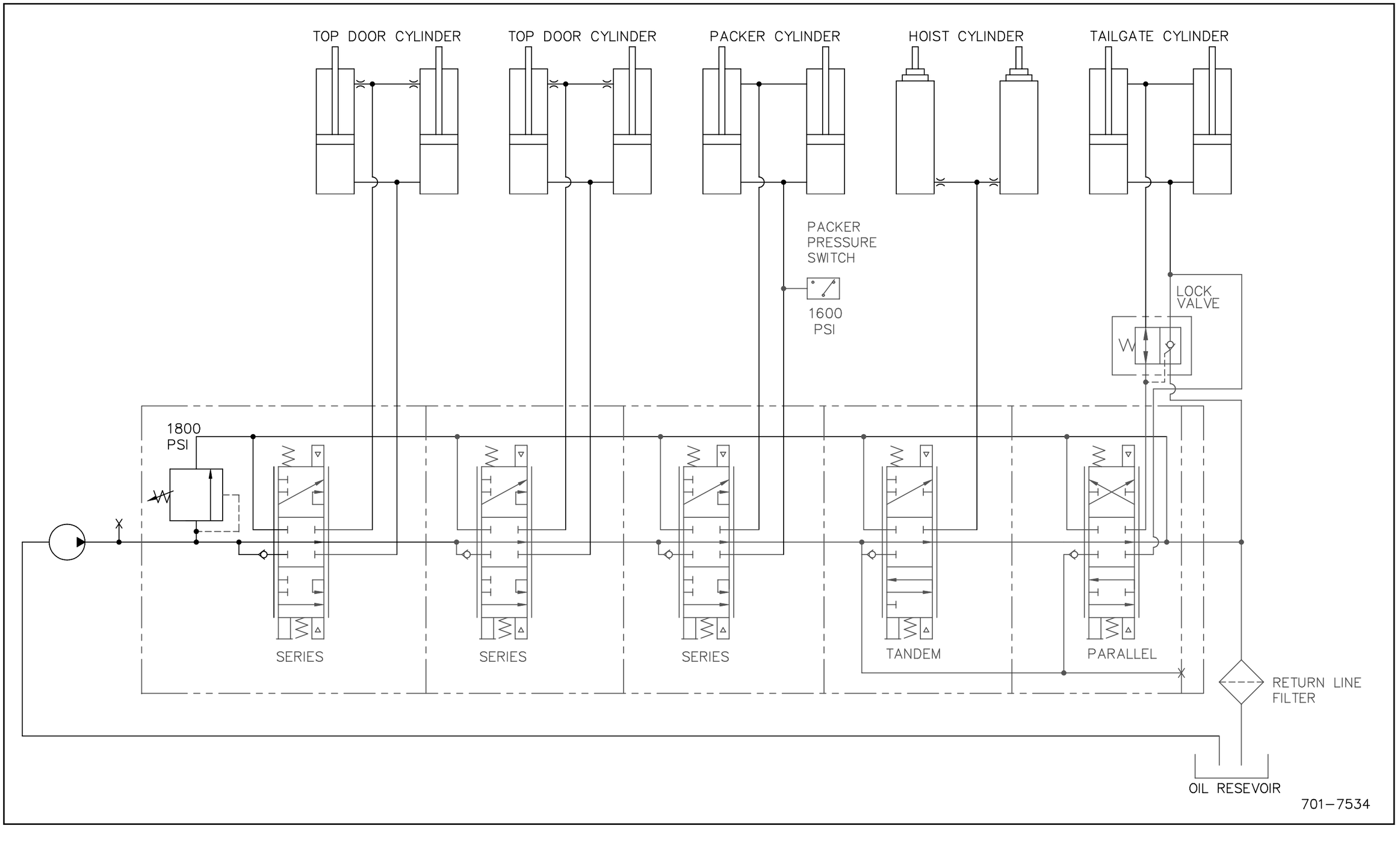
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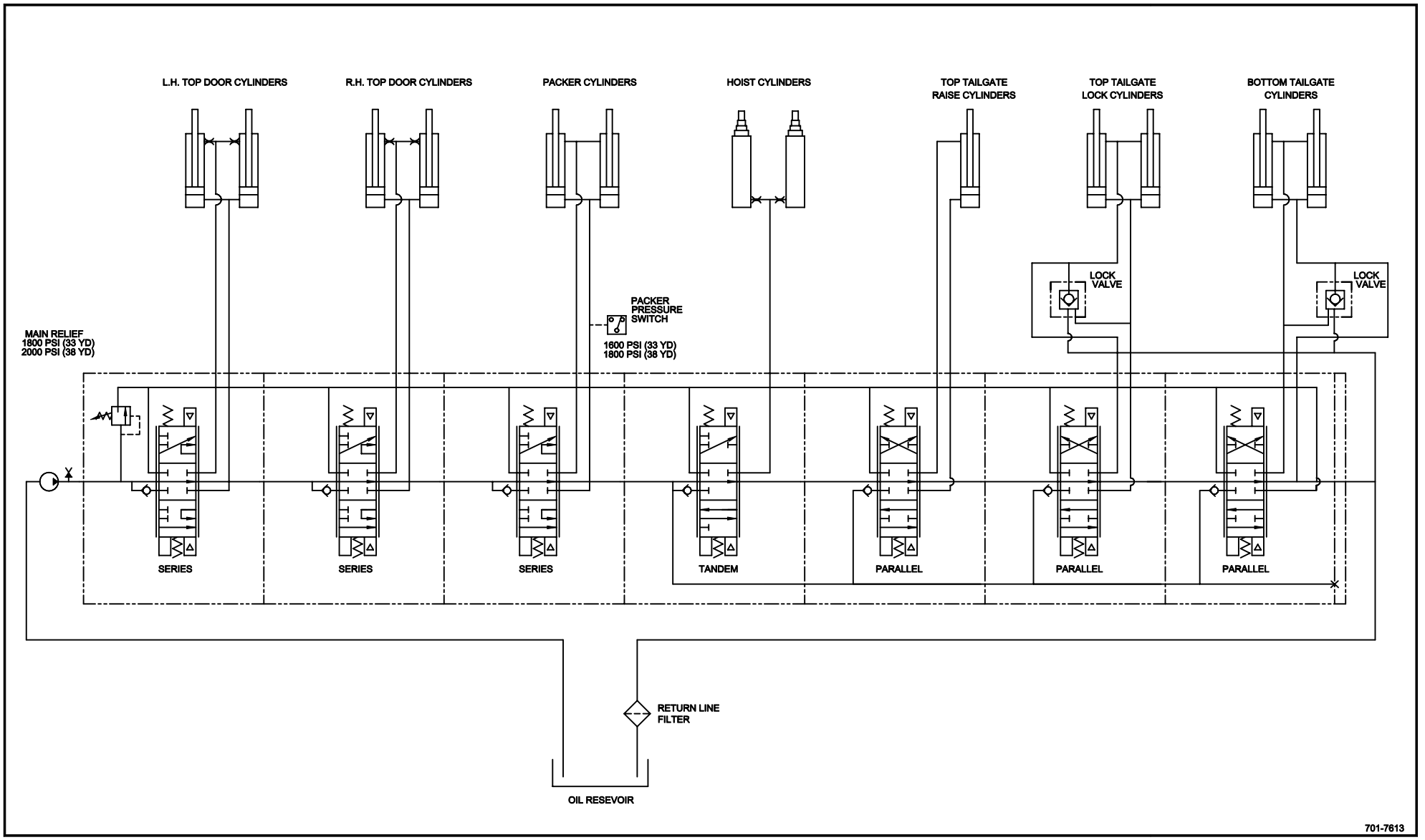


BODY INPUT DEVICE - R2000
ELECTRICAL SCHEMATIC
701-8438-003

RECYCLE UNIT
HYDRAULIC SCHEMATIC
UNITS SERIAL NUMBER 1000 THRU 1138



RECYLE UNIT
HYDRAULIC SCHEMATIC
UNITS SERIAL NUMBER 1139 and AFTER



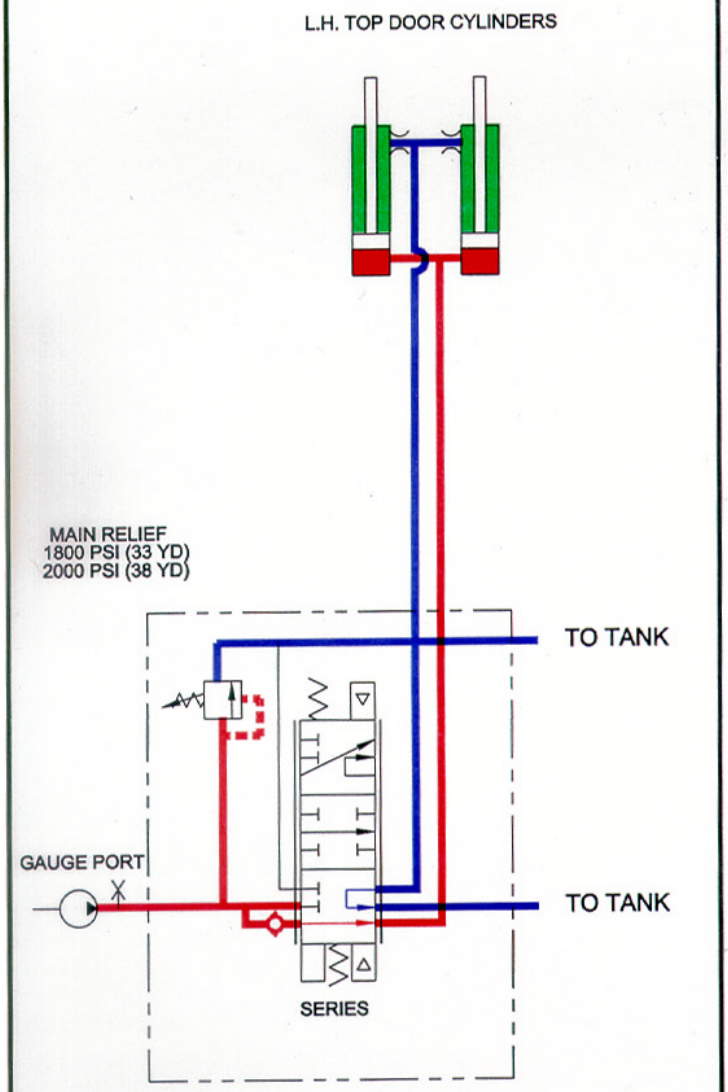
RECYCLE 2000

HYDRAULIC OIL FLOW DIAGRAMS

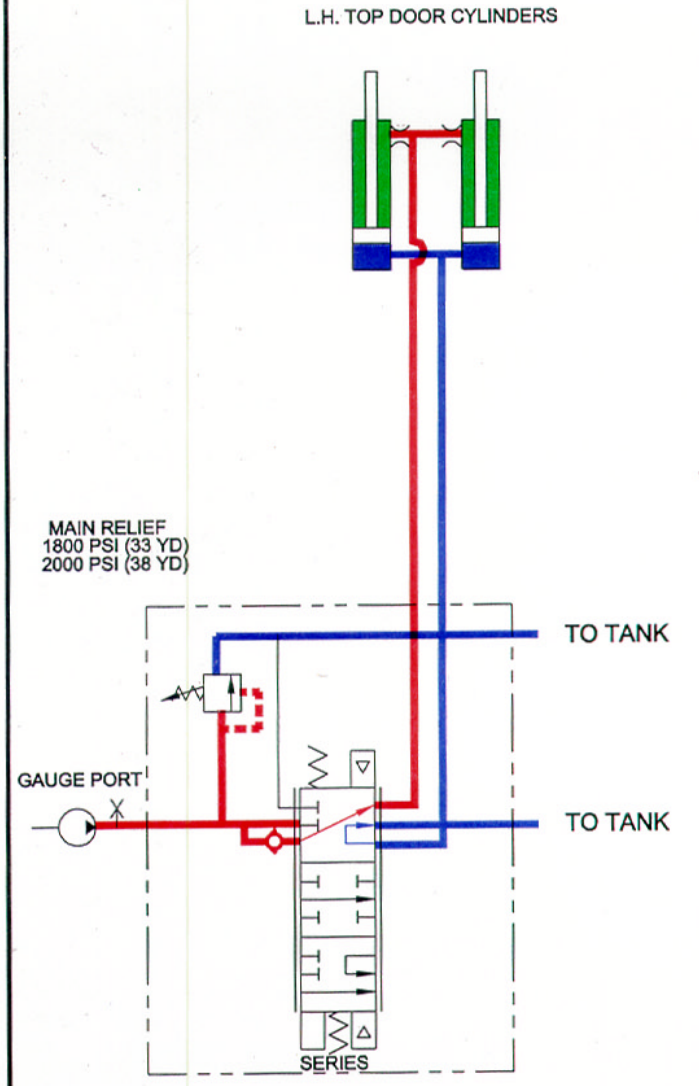
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ISSUED MARCH 1999

L.H. BUCKET RAISE



L.H. BUCKET LOWER



LEGEND

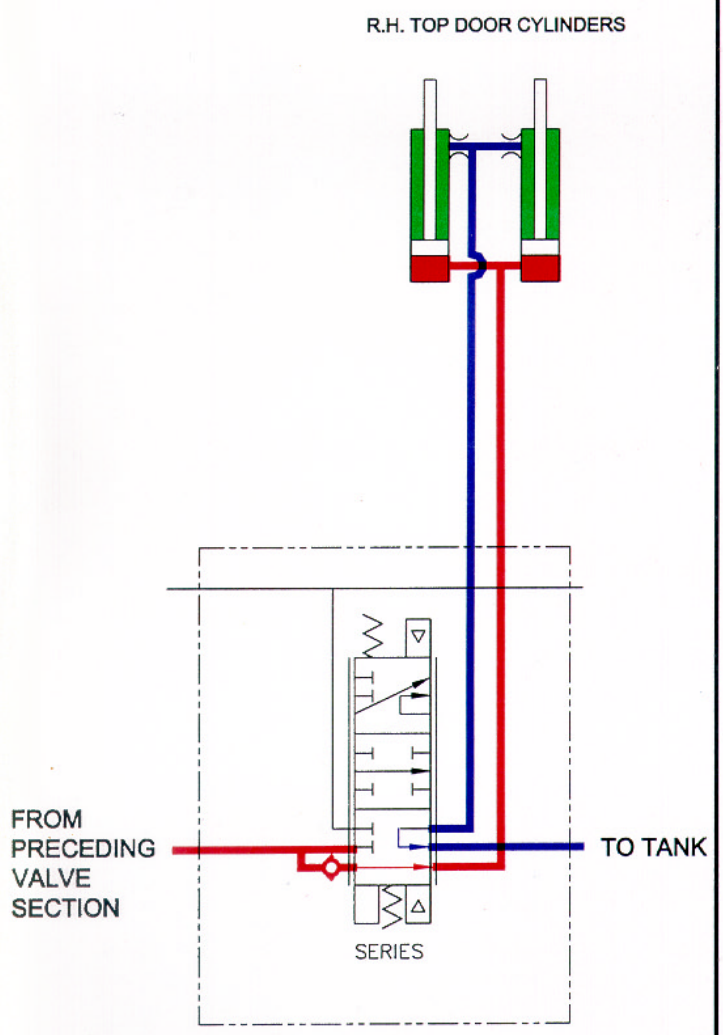
= PUMP PRESSURE

= RETURN PRESSURE

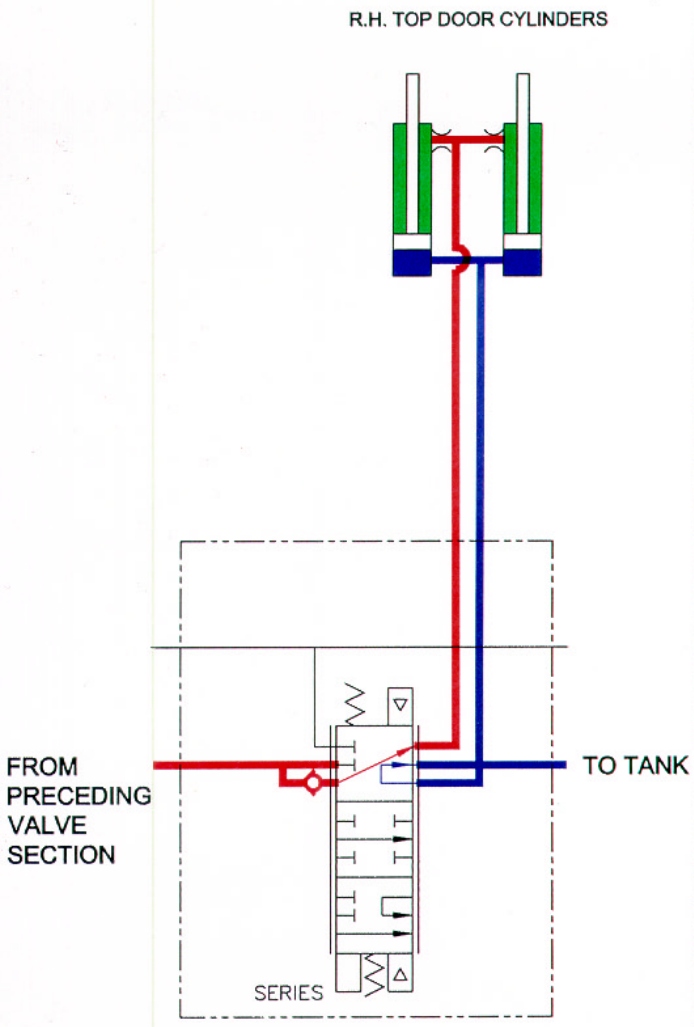
= METERED PRESSURE

701A7613

R.H. BUCKET RAISE



R.H. BUCKET LOWER



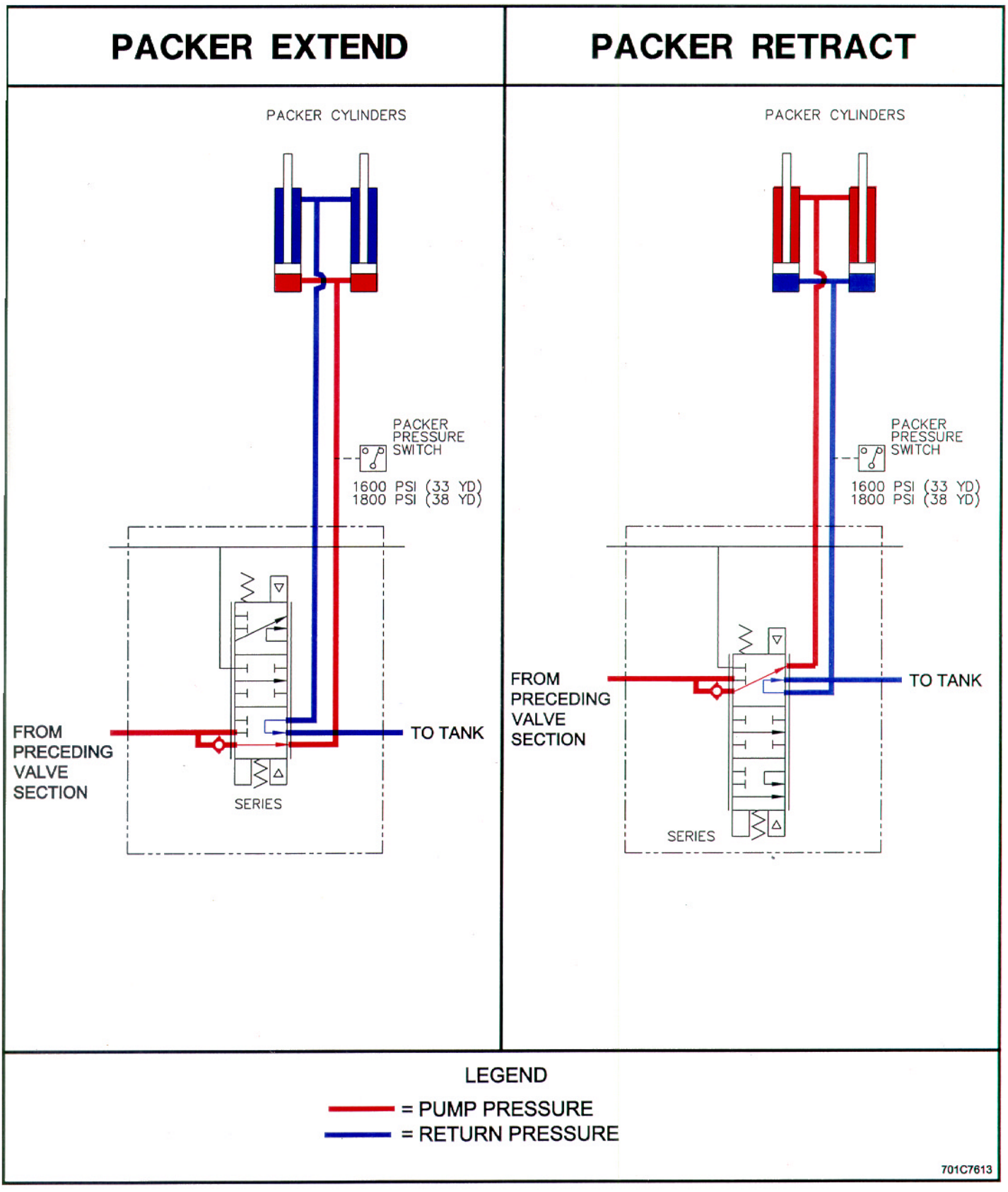
LEGEND

= PUMP PRESSURE

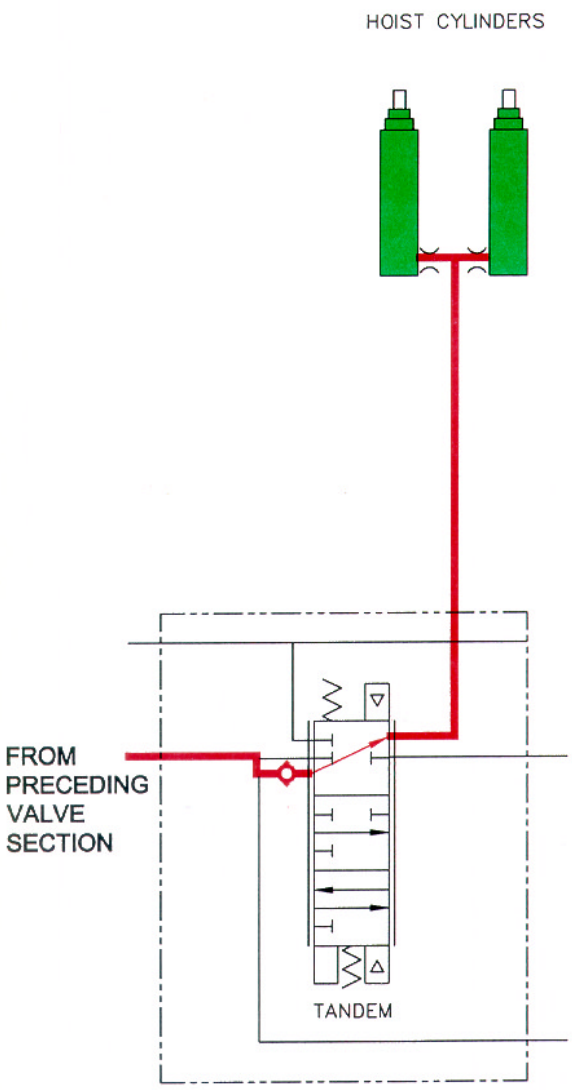
= RETURN PRESSURE

= METERED PRESSURE

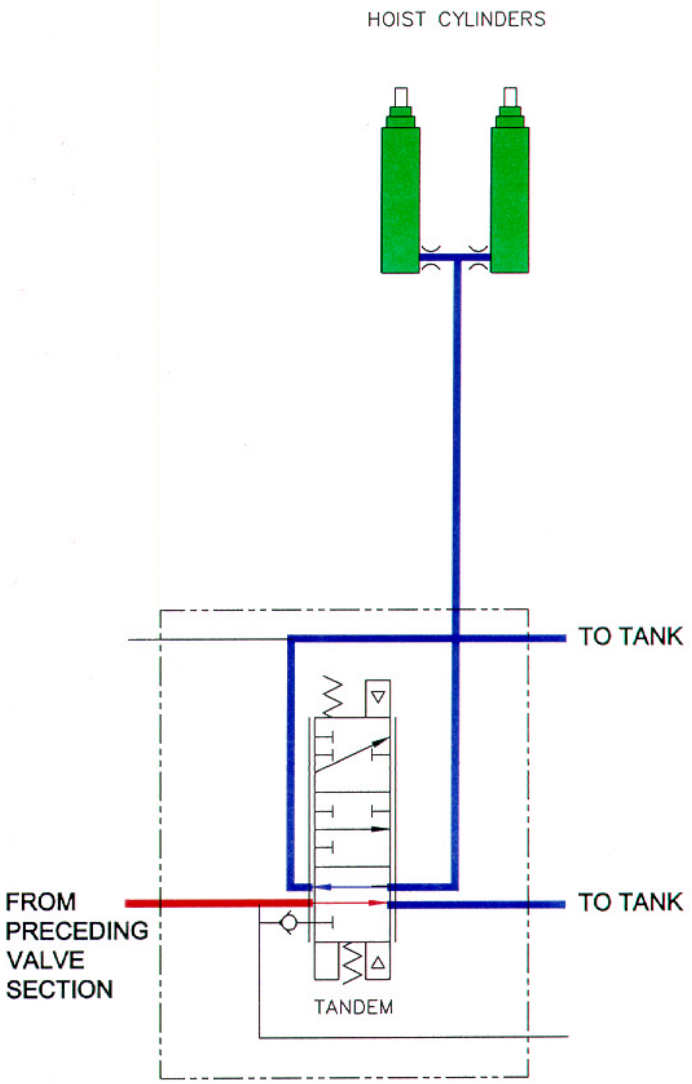
701B7613


PACKER EXTEND
PACKER RETRACT
PACKER CYLINDERS
PACKER PRESSURE SWITCH
1600 PSI (33 YD)
1800 PSI (38 YD)
FROM PRECEDING VALVE SECTION
TO TANK
SERIES
LEGEND
= PUMP PRESSURE
= RETURN PRESSURE
701C7613

BODY RAISE



BODY LOWER



LEGEND

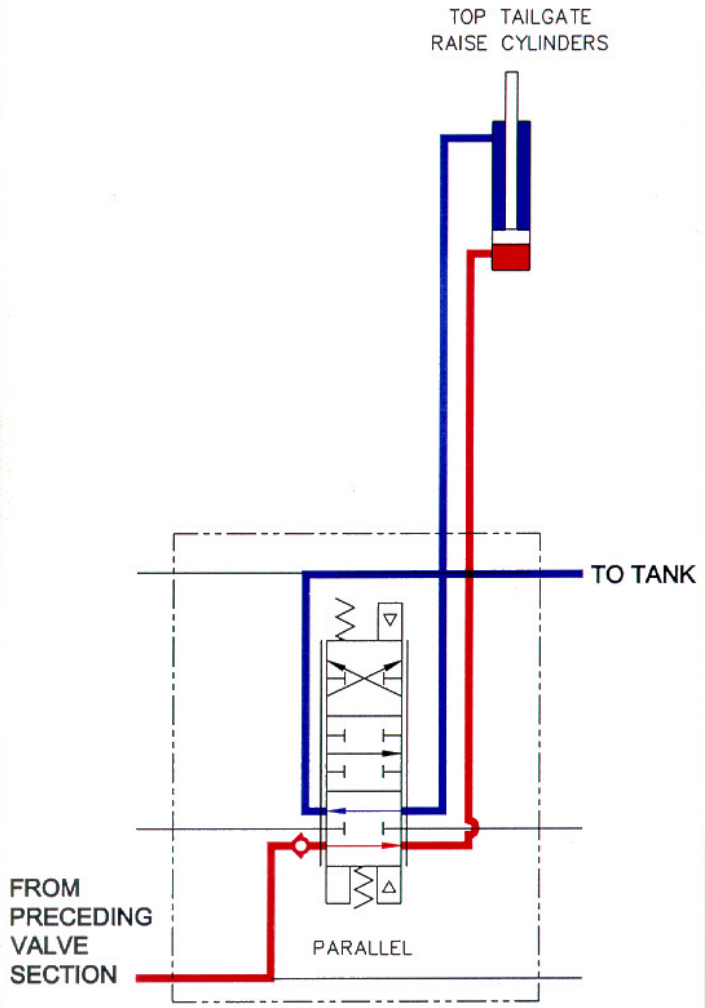
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= RETURN PRESSURE

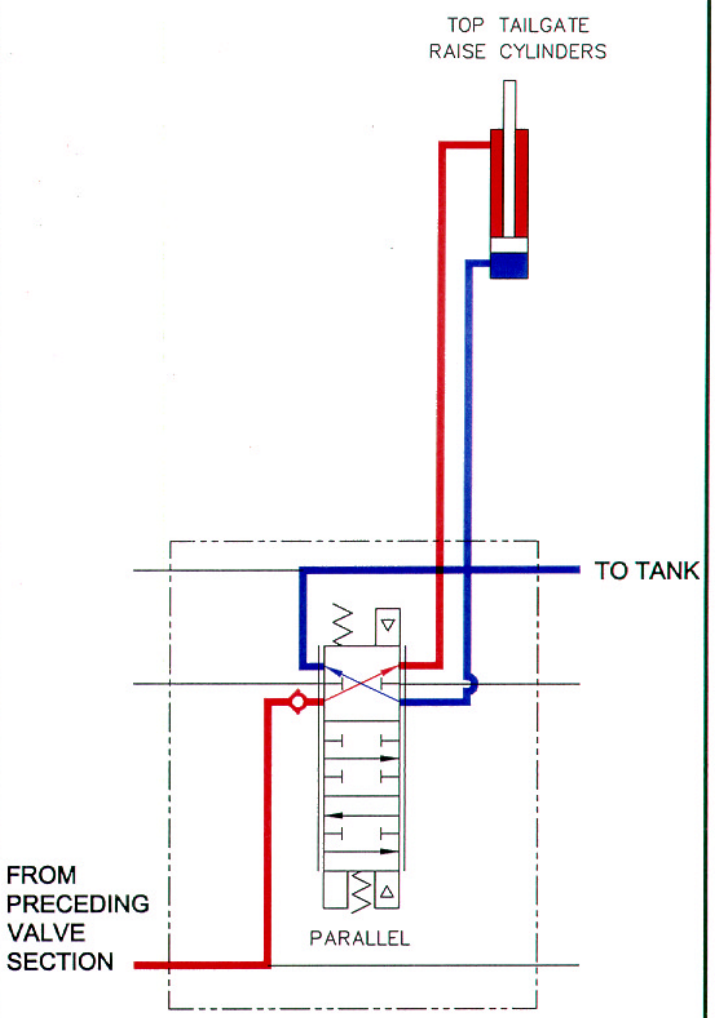
= METERED PRESSURE

701D7613

TOP TAILGATE RAISE



TOP TAILGATE LOWER



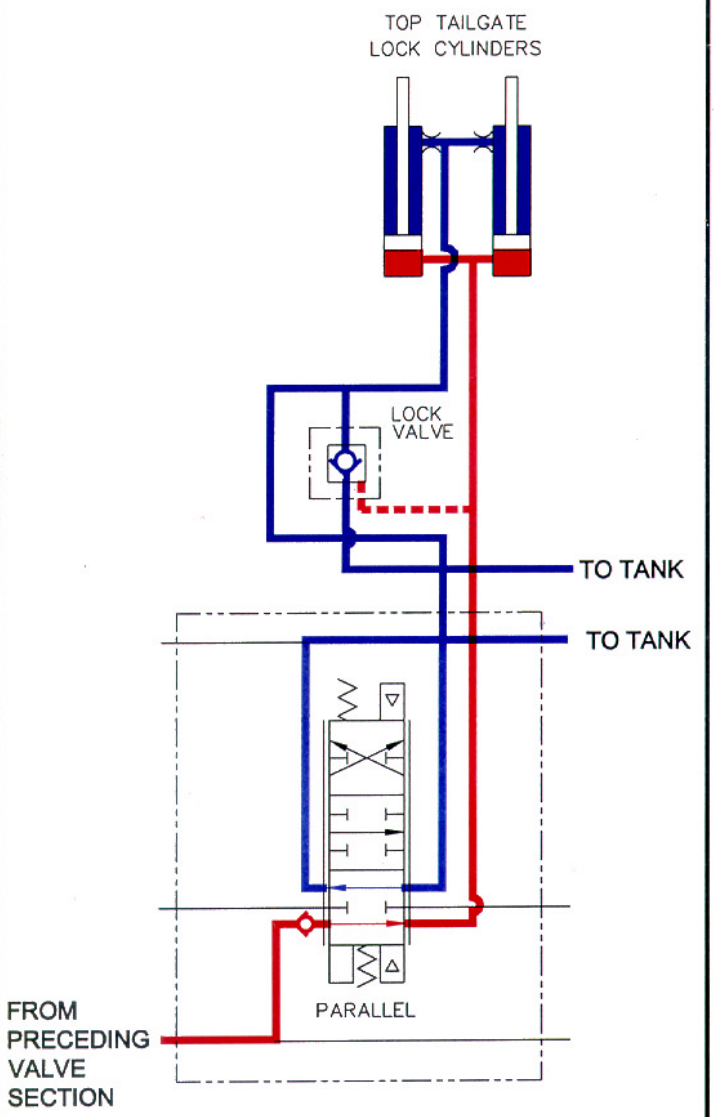
LEGEND

= PUMP PRESSURE

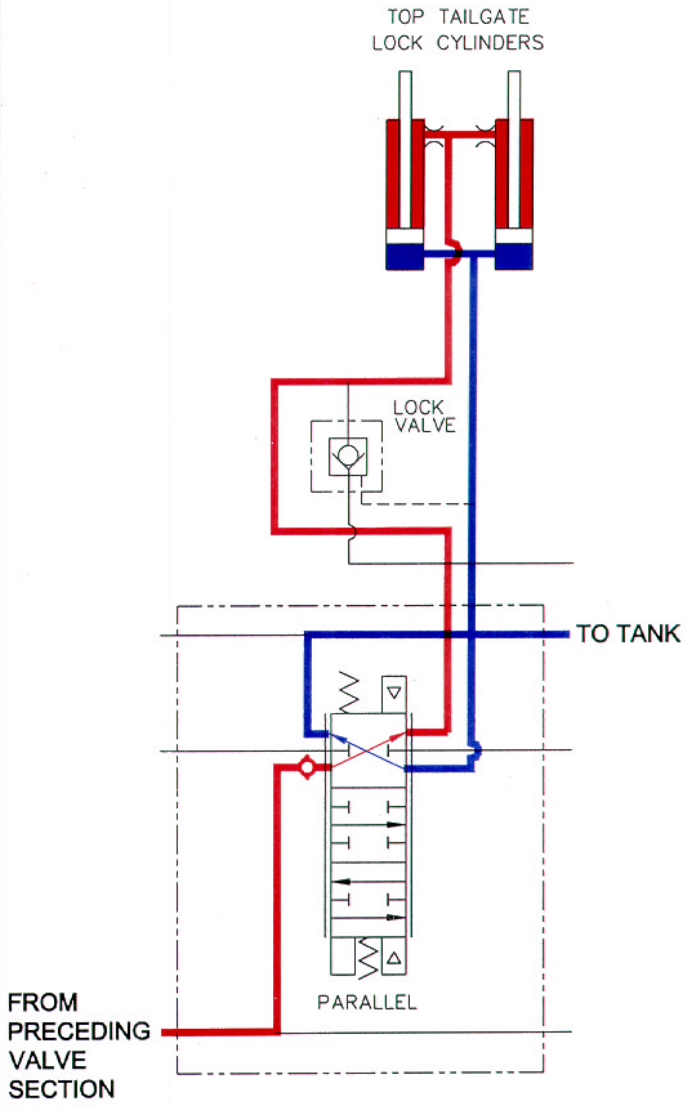
= RETURN PRESSURE

701E7613

TOP TAILGATE LOCK CYLINDERS EXTEND



TOP TAILGATE LOCK CYLINDERS RETRACT



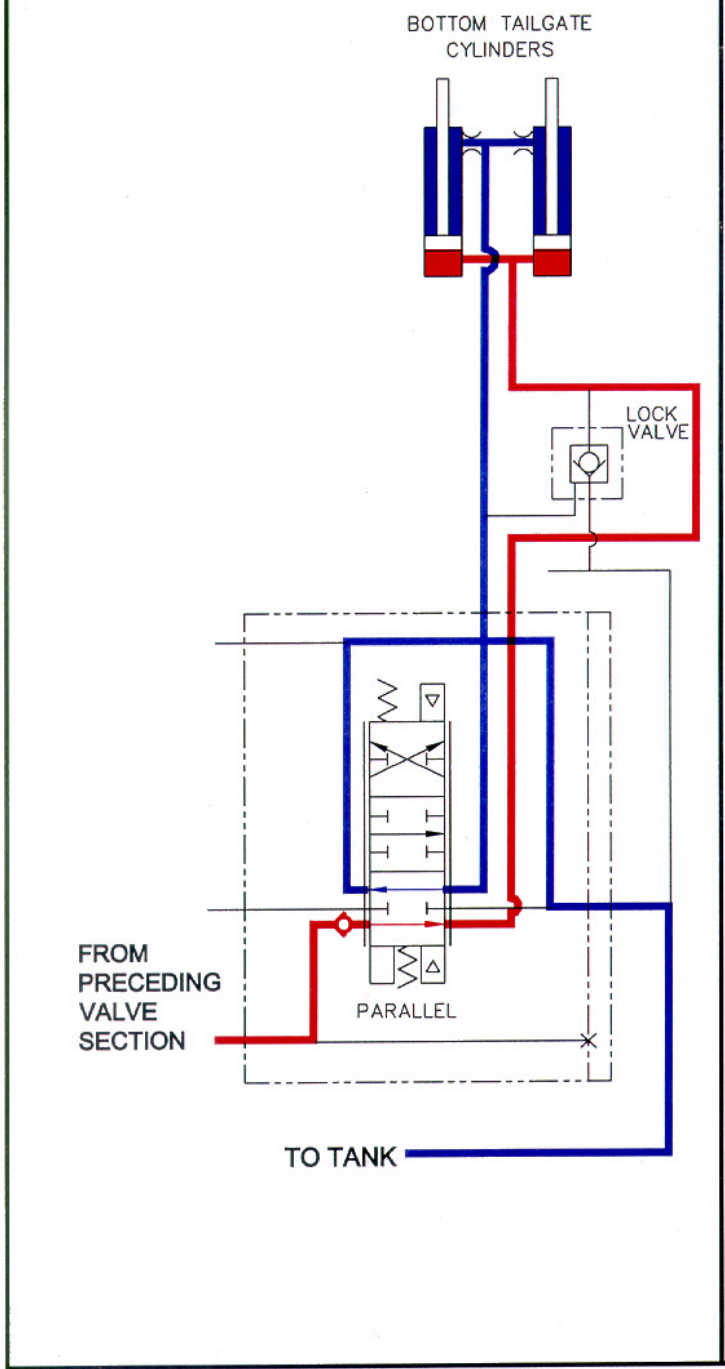
LEGEND

= PUMP PRESSURE

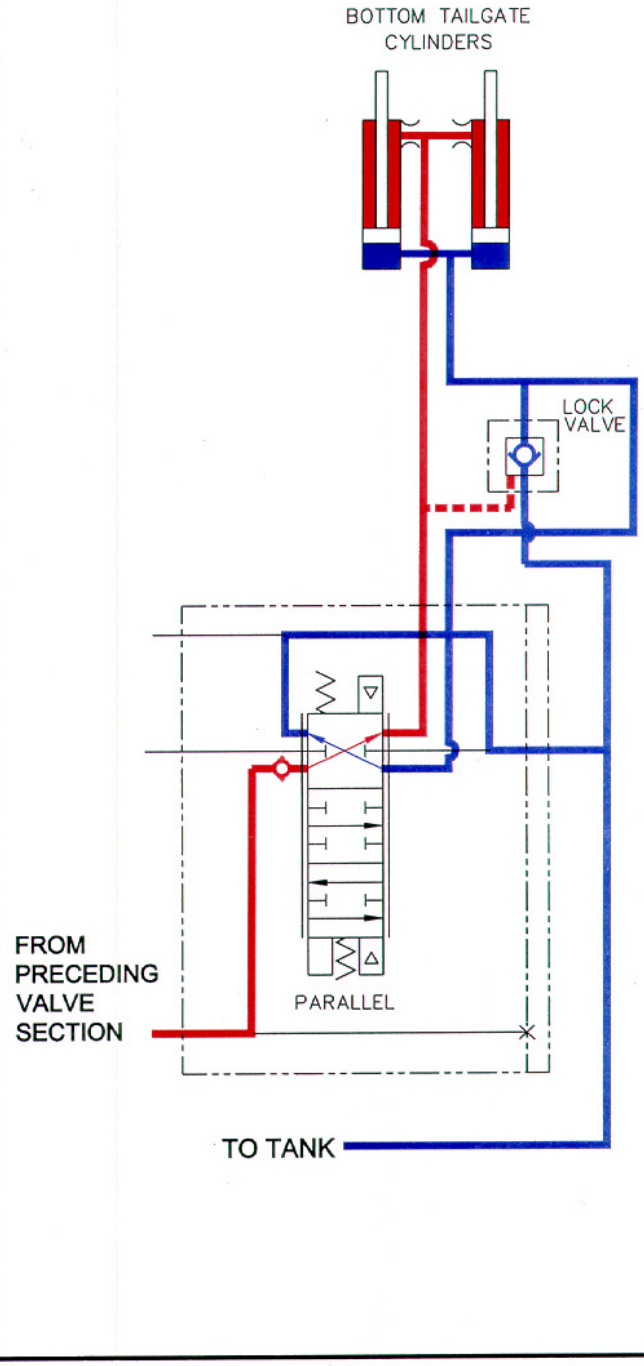
= RETURN PRESSURE

701F7613

BOTTOM TAILGATE RAISE



BOTTOM TAILGATE LOWER



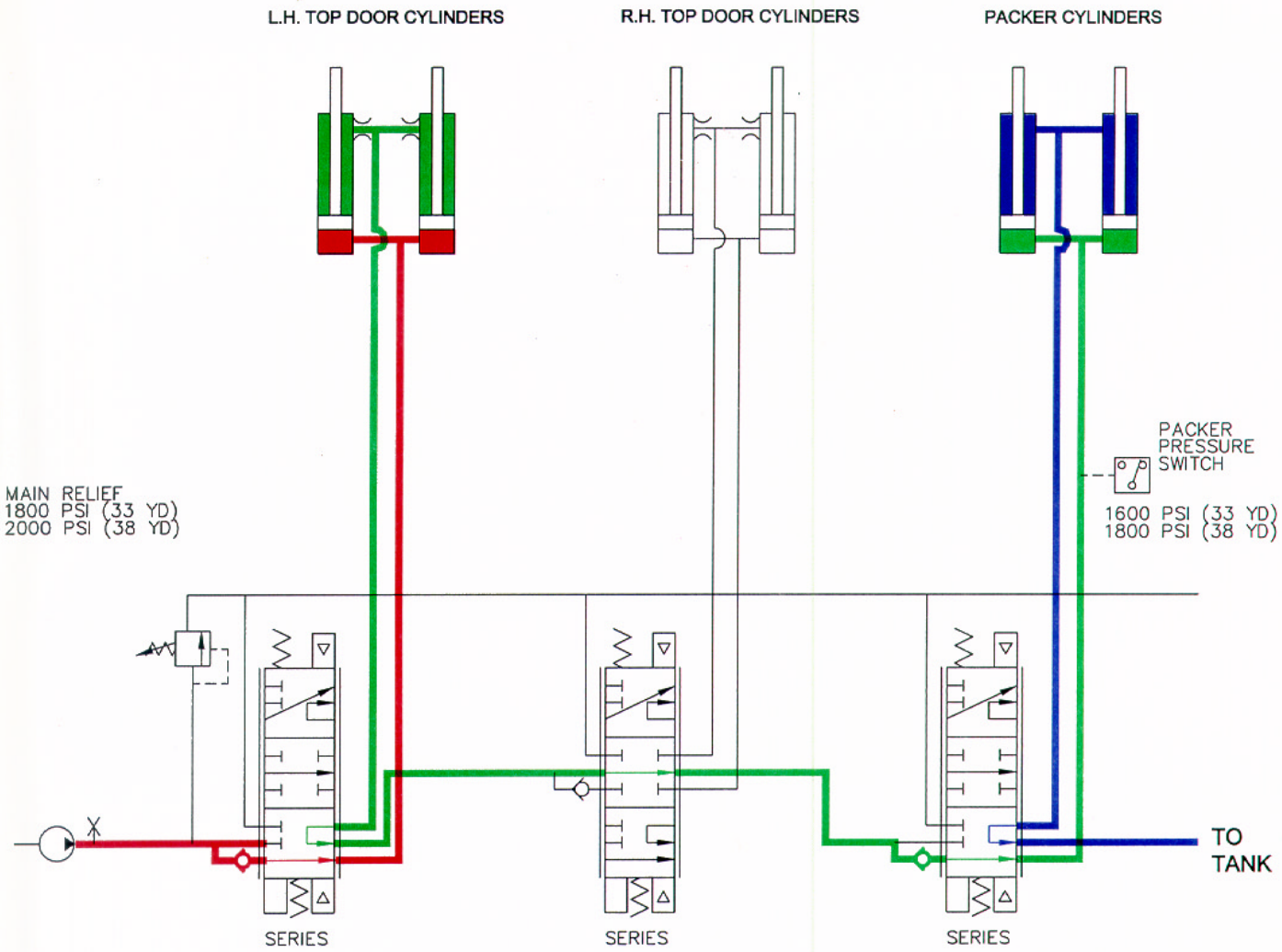
LEGEND

= PUMP PRESSURE

= RETURN PRESSURE

701G7613

L.H. BUCKET UP & PACKER EXTEND



LEGEND

= PUMP PRESSURE

= RETURN PRESSURE

= METERED PRESSURE

701H7613

RECYCLE 2000

PLC ELECTRICAL

UNITS SERIAL NUMBER
RC2202040 and AFTER

MFG. FEBRUARY 20,2004 - AFTER

PARTS MANUAL SUPPLEMENT



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MR-75000-0110

RECYCLE 2000

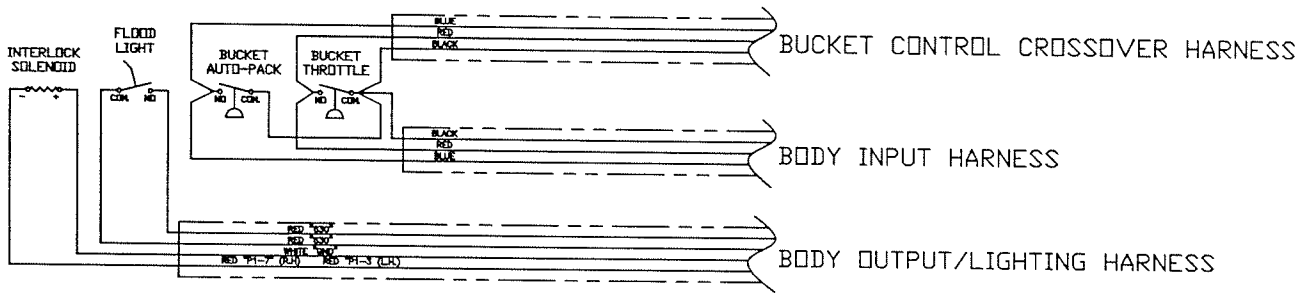
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Dash Mounted Cab Control Panel....7
Body Electrical Input Devices....9
Body Electrical Lighting....11
Body Electrical Lighting (LED)....13
Pneumatic (Air) Schematic....15

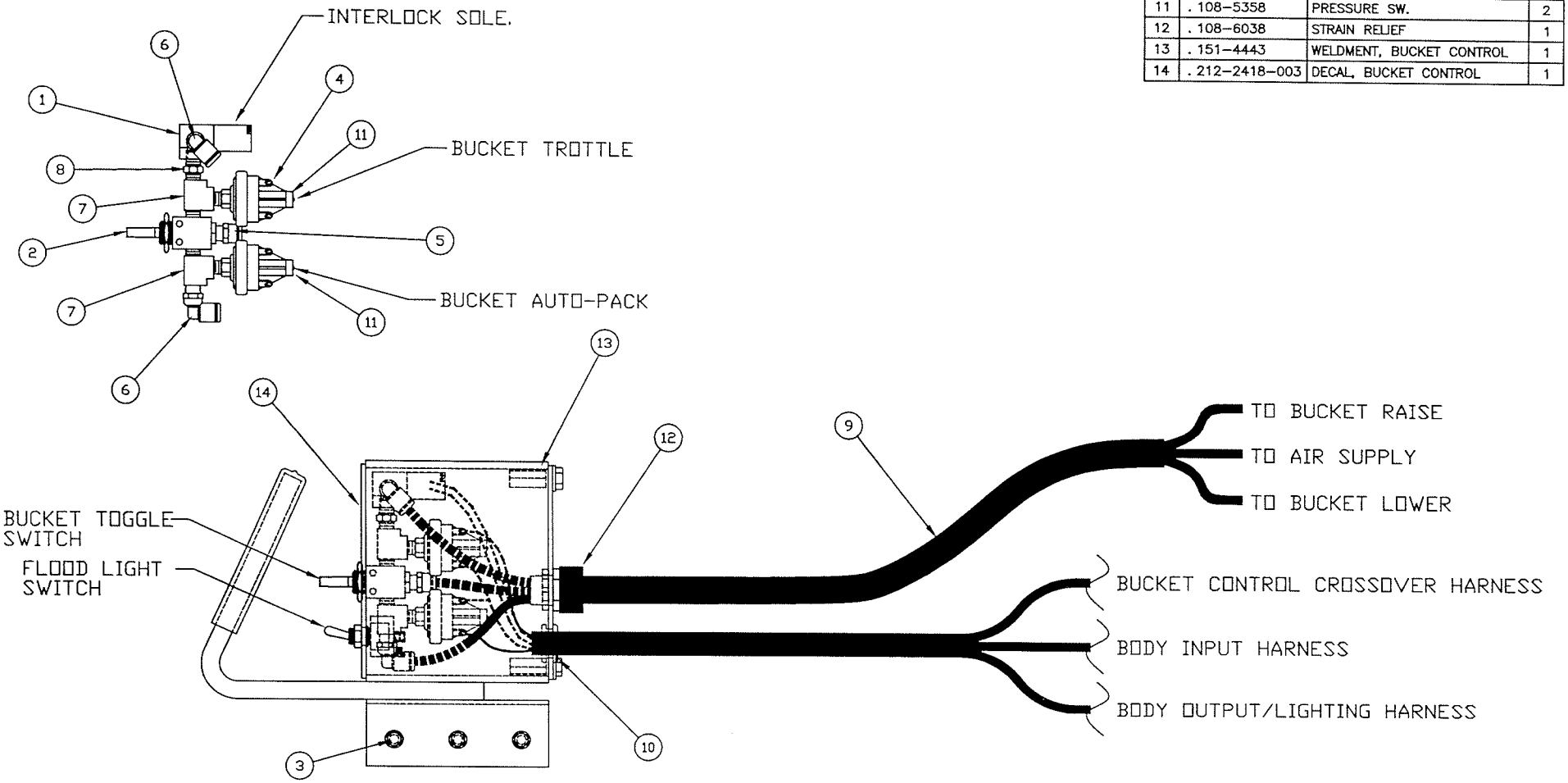
NOTE

THESE PAGES ARE ADDED OR REPLACE EXISTING PAGES IN THE STANDARD RECYCLE 2000 PARTS MANUAL AND MAINTENANCE ADJUSTMENT SECTION.

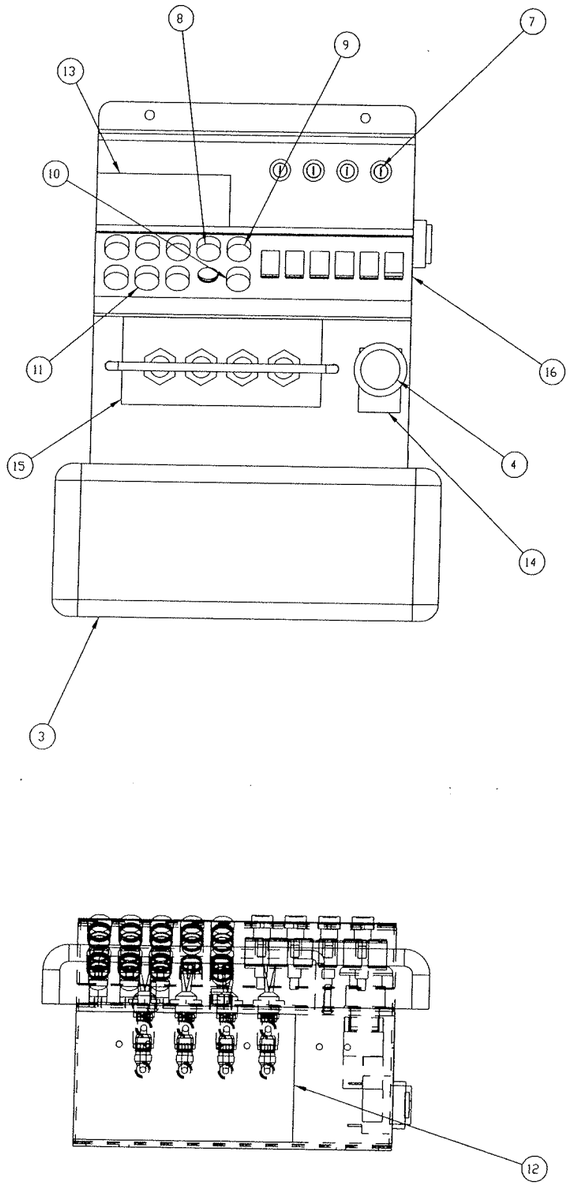
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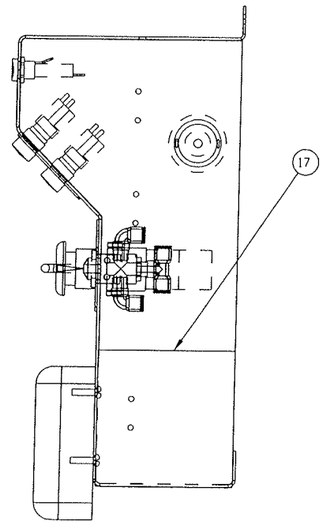


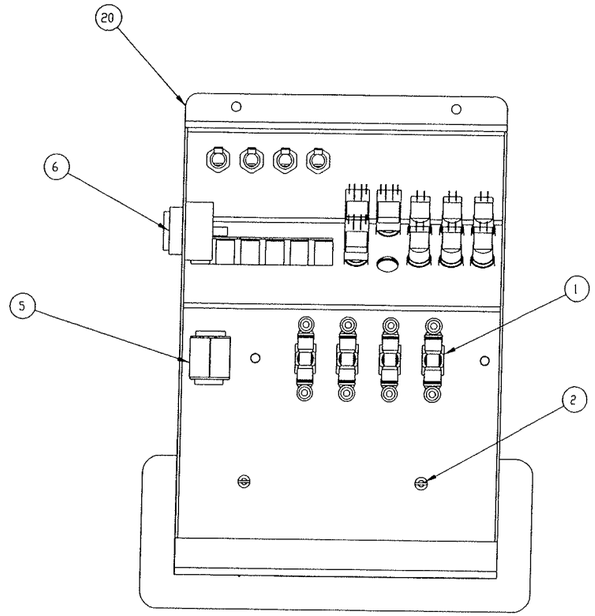
REF.	PART No.	DESCRIPTION	QTY.
1	. 031-5724-012	SOLENOID	1
2	. 031-5785	TOGGLE VALVE	1
3	. 047-2151-011	1/4" TEK SCREW	6
4	. 054-7350	SHRINK TUBING	3"
5	. 054-8468-003	1/8"NPT-1/4" TUBE STRAIGHT	1
6	. 054-8470-003	1/8"NPT-1/4"TUBE ELBO	2
7	. 054-8740-001	1/8" STREET TEE (BRASS)	2
8	. 054-8927-001	1/8" HEX NIPPLE (BRASS)	1
9	. 054-9544	MULTI-TUBE 3 AIR LINE	10'
10	. 108-0472	GROMMET	1
11	. 108-5358	PRESSURE SW.	2
12	. 108-6038	STRAIN RELIEF	1
13	. 151-4443	WELDMENT, BUCKET CONTROL	1
14	. 212-2418-003	DECAL, BUCKET CONTROL	1



BUCKET CONTROL ASSEMBLY
254-4568

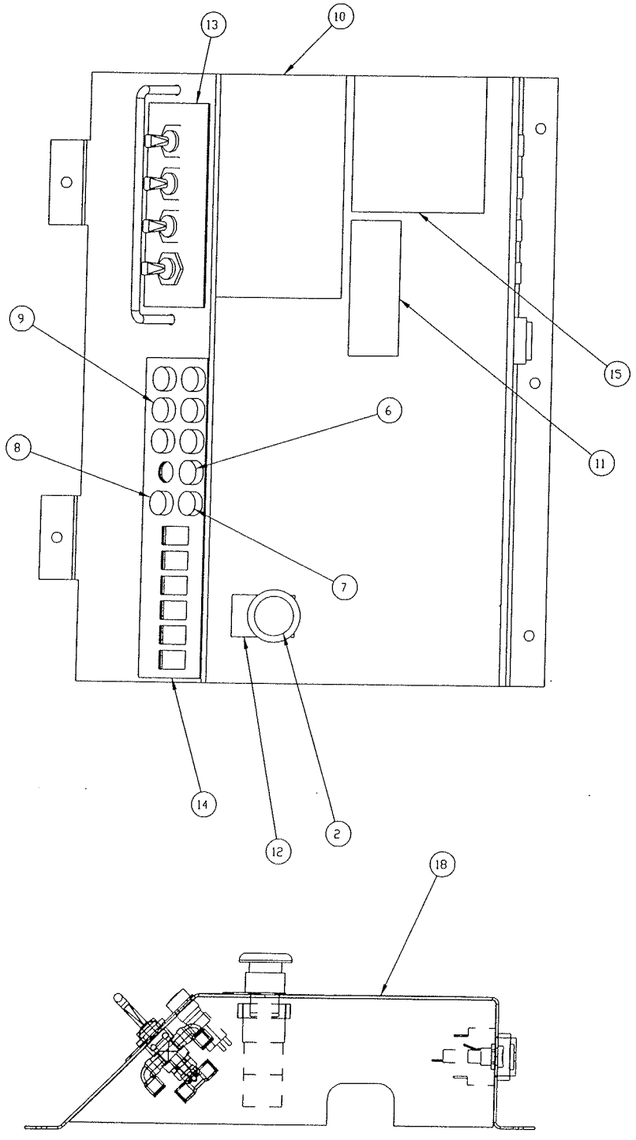


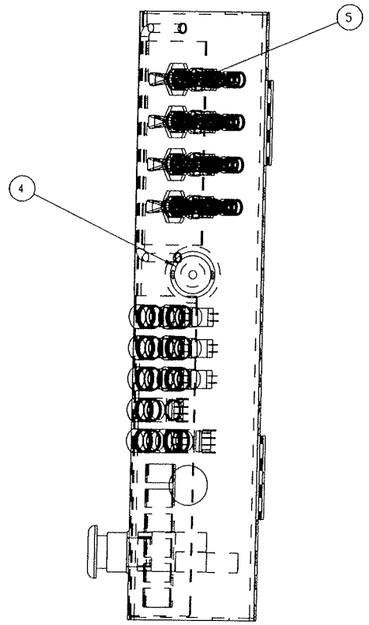


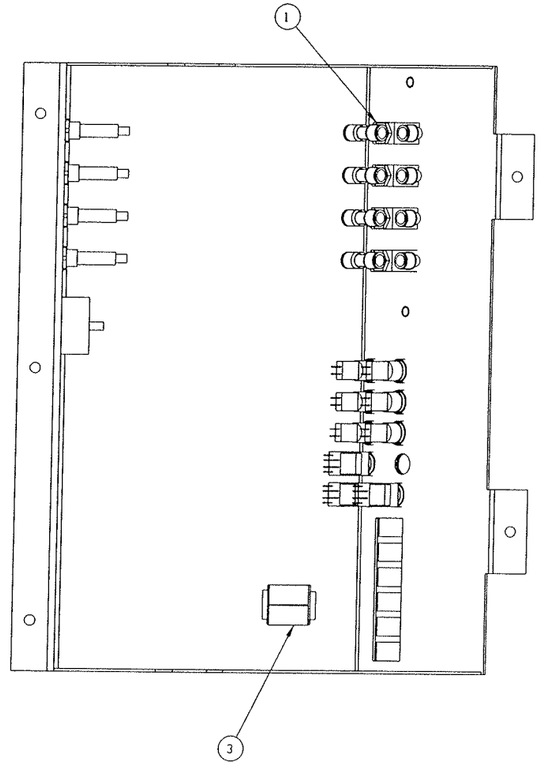


REF	PART No.	DESCRIPTION	QTY
1	031-6297	ASS'Y, PNEUMATIC TOGGLE VALVE	4
2	047-2394	#12 X 3/4' PAN HEAD SCREW	4
3	080-1588	PAD, ARM REST	1
4	108-4433	STOP SWITCH, RED ILLUMINATED	1
5	108-4434-003	CONTACT BLOCK (N.C.)	2
6	108-7766	AUDIBLE ALARM	1
7	108-7769	FUSE HOLDER 5X20MM	4
8	108-7858-001	ILLUMINATED PUSH BUTTON RED N.O.	1
9	108-7858-002	ILLUMINATED PUSH BUTTON, GREEN N.O.	1
10	108-7858-003	ILLUMINATED PUSH BUTTON, YELLOW N.O.	1
11	115-1256-001	LED INDICATOR 16MM (RED)	6
12	212-2426-002	DECAL, AUTO-PACK PACK CYCLE	1
13	212-2595-001	DECAL, MANUAL PACK MODE	1
14	212-2699-003	LABEL, SYSTEM POWER	1
15	212-2699-024	LABEL, TOGGLE VALVE	1
16	212-2699-023	LABEL, CONTROL PANEL	1
17	212-2738-008	DECAL, BEEP CODE	1
18	263-1049-001	HARNESS, CONTROL PANEL	1
19	263-1049-002	HARNESS, CONTROL PANEL	1
20	311-2811-110	BRK'T CONTROL PANEL	1

PEDESTAL MOUNTED CONTROL PANEL
254-4569-101

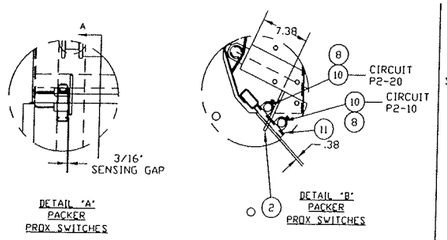




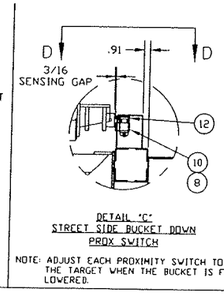


REF	PART No.	DESCRIPTION	QTY
1	031-6297	ASS'Y, PNEUMATIC TOGGLE VALVE	4
2	108-4433	STOP SWITCH, RED ILLUMINATED	1
3	108-4434-003	CONTACT BLOCK (N.C.)	2
4	108-7766	AUDIBLE ALARM	1
5	108-7769	FUSE HOLDER 5X20MM	4
6	108-7858-001	ILLUMINATED PUSH BUTTON RED N.O.	1
7	108-7858-002	ILLUMINATED PUSH BUTTON, GREEN N.O.	1
8	108-7858-003	ILLUMINATED PUSH BUTTON, YELLOW N.O.	1
9	115-1256-001	LED INDICATOR 16MM (RED)	6
10	212-2426-002	DECAL, AUTO-PACK PACK CYCLE	1
11	212-2595-001	DECAL, MANUAL PACK MODE	1
12	212-2699-003	LABEL, SYSTEM POWER	1
13	212-2699-024	LABEL, TOGGLE VALVE	1
14	212-2699-023	LABEL, CONTROL PANEL	1
15	212-2738-008	DECAL, BEEP CODE	1
16	263-1049-001	HARNESS, CONTROL PANEL	1
17	263-1049-002	HARNESS, CONTROL PANEL	1
18	311-2811-410	BRK'T ASS'Y, IN-CAB CONTROL	1

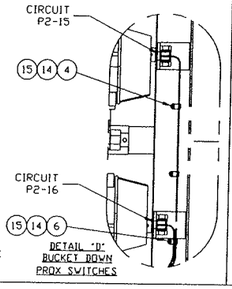
DASH MOUNTED CONTROL PANEL
254-4569-201

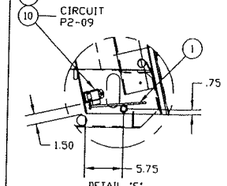


NOTE: ADJUST THE PROXIMITY SWITCH TO ACHIEVE THE CORRECT PACKER STROKE.

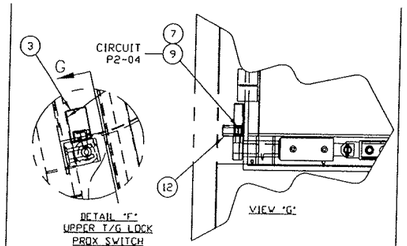


NOTE: ADJUST EACH PROXIMITY SWITCH TO SENSE THE TARGET WHEN THE BUCKET IS FULLY LOWERED.

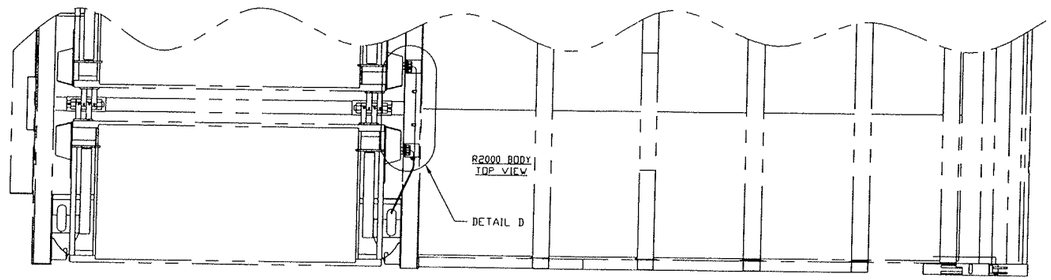




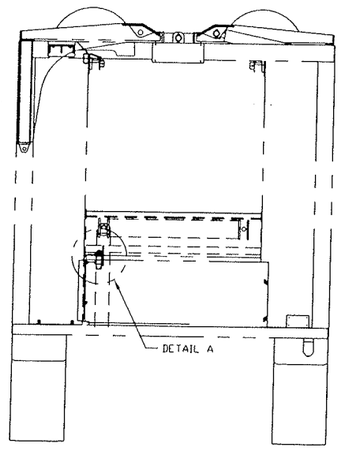
NOTE: ADJUST PROXIMITY SWITCH TO SENSE THE TARGET WHEN THE TAILGATE IS FULLY LOWERED AND LOCKED.

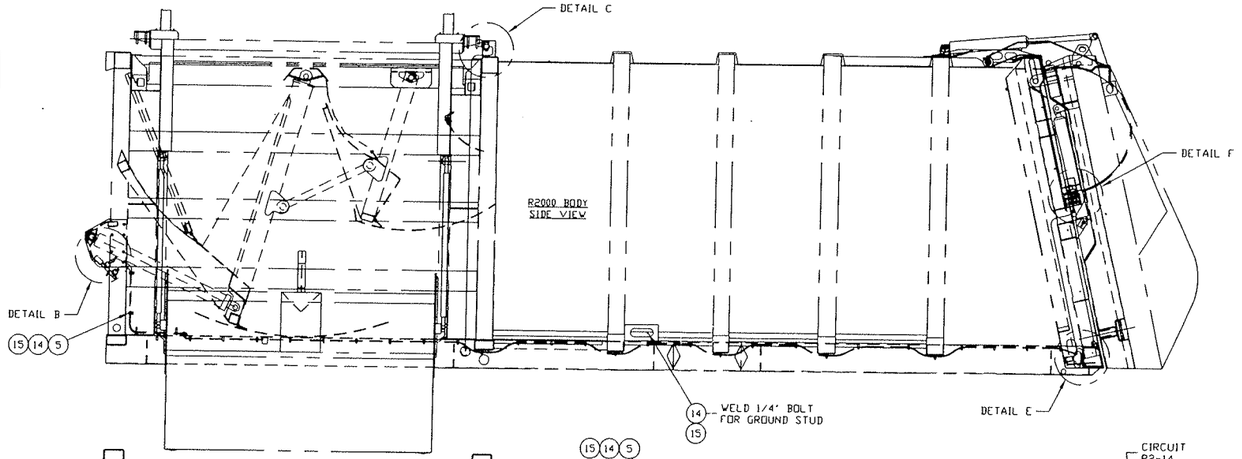


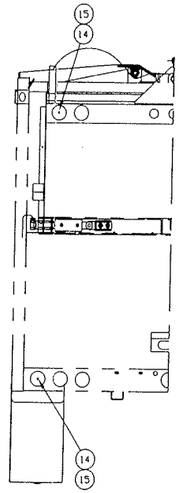
NOTE: ADJUST PROXIMITY SWITCH TO SENSE THE TAILGATE LOCK CYLINDER ROD.

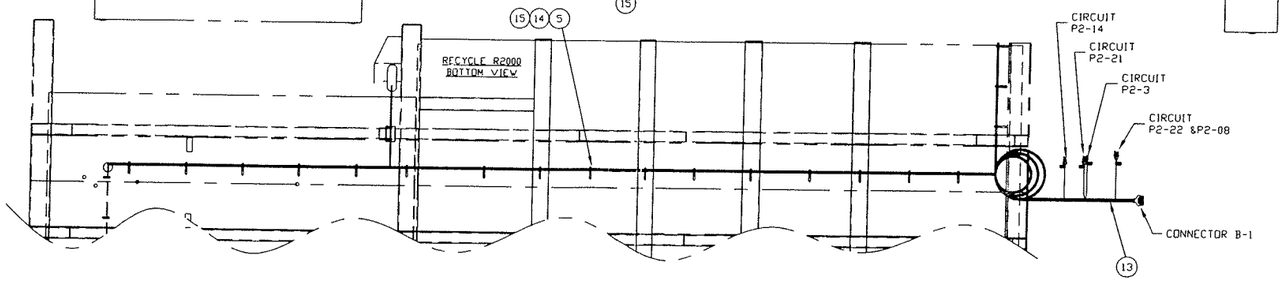


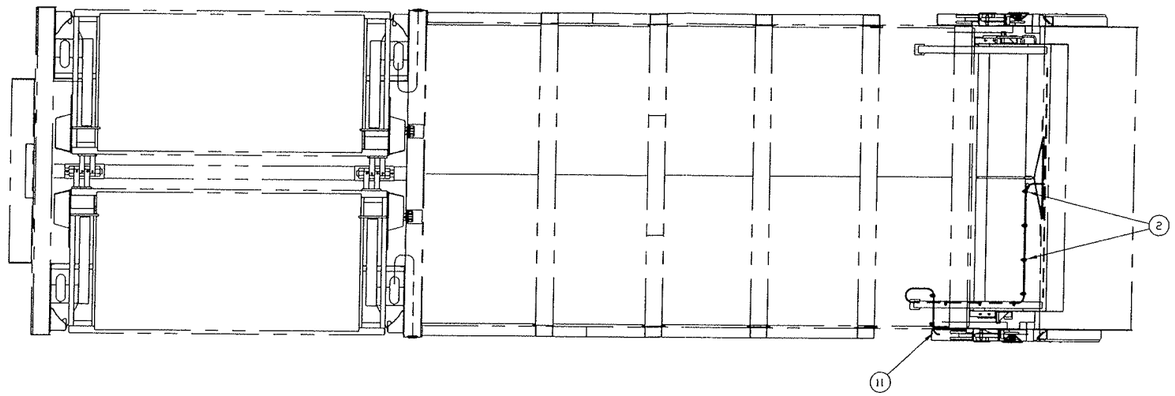
REF.	PART No.	DESCRIPTION	QTY.
1	. 013-5141	PROX, TARGET, TAILGATE CLOSED	1
2	. 013-5203-002	PROX. TARGET, PACKER	1
3	. 035-3015	GUARD, PROX. SWITCH	1
4	. 036-1122-006	TUBE CLAMP 3/8	2
5	. 036-1122-031	TUBE CLAMP 1-5/16"	25
6	. 036-1295-002	TUBE CLAMP 7/8"	10
7	. 036-1474-006	HYDRASORB CLAMP ASS'Y, 3/4"	1
8	. 036-1474-009	HYDRASORB CLAMP ASS'Y, 1-1/4"	5
9	. 063-0108	PROX. SW. 18MM SOURCING	1
10	. 063-0109	PROX. SW. 30MM SOURCING	5
11	. 207-2938-003	UNISTRUT CHANNEL, 6.00"	1
12	. 207-2938-006	UNISTRUT CHANNEL, 3.00"	3
13	. 263-1037-001	HARNESS, INPUT DEVICE R2000	1
14	. FS070720	BOLT, 1/4"-20 X 1"	40
15	. FS230700	LOCKNUT 1/4-20	40



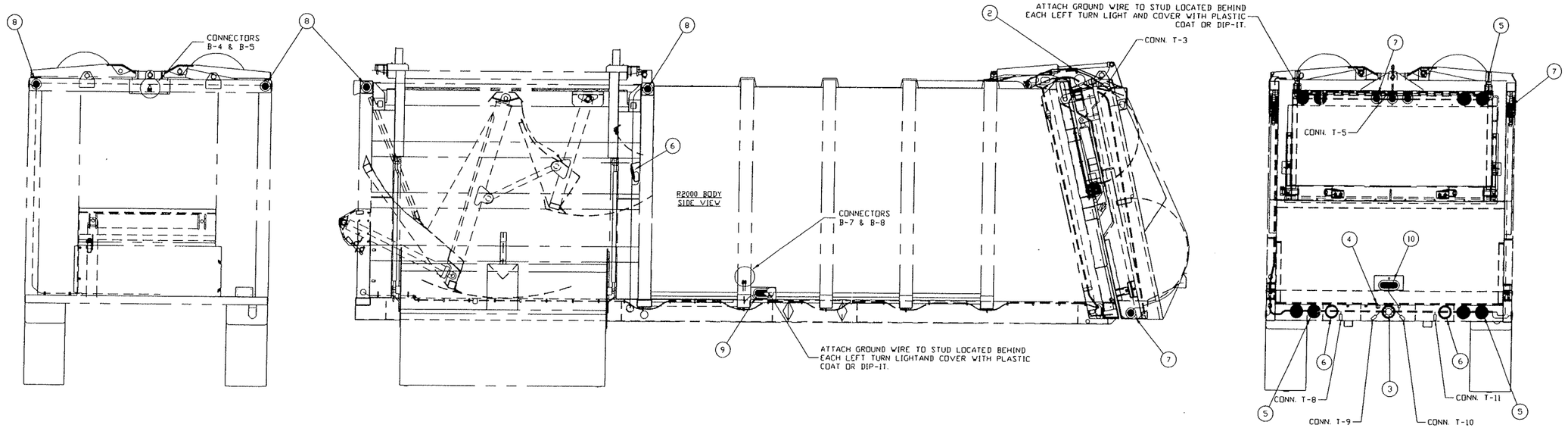


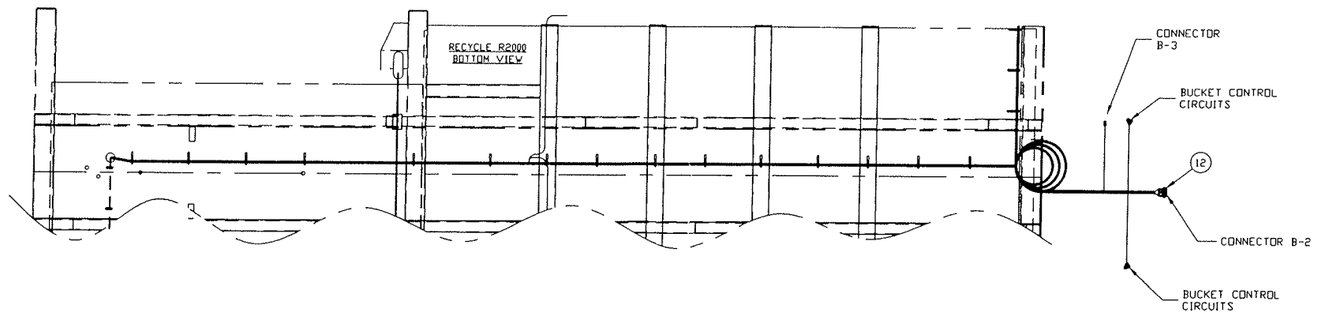




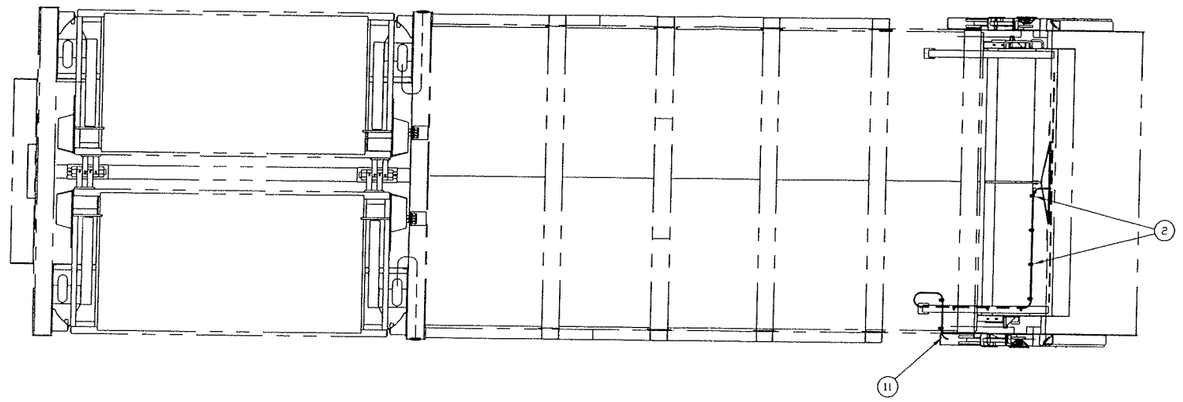


REF.	PART No.	DESCRIPTION	QTY.
1	. 036-1115	PLASTIC TIE	100
2	. 036-1295-002	TUBE CLAMP 7/8"	10
3	. 108-7726	ALARM, BACK-UP	1
4	. 115-0608	LIGHT, LICENSE PLATE	1
5	. 115-0742	LIGHT, STOP, TURN/TAIL (RED) 4.00"	8
6	. 115-0743	LIGHT, BACK-UP (CLEAR) 4.00"	4
7	. 115-0760	LIGHT, CLEARANCE, (RED) 2-1/2"	7
8	. 115-0761	LIGHT, CLEARANCE (AMBER)	6
9	. 115-0782	LIGHT, MID-TURN (AMBER)	2
10	. 115-0869	LIGHT, STOP (RED) OVAL	1
11	. 263-1197-001	HARNESS, TAILGATE (STANDARD)	1
12	. 263-1034	HARNESS, OUTPUT DEVICE R2000	1
13	. FS070720	BOLT, 1/4"-20 X 1"	10
14	. FS230700	LOCK NUT, 1/4"-20	10

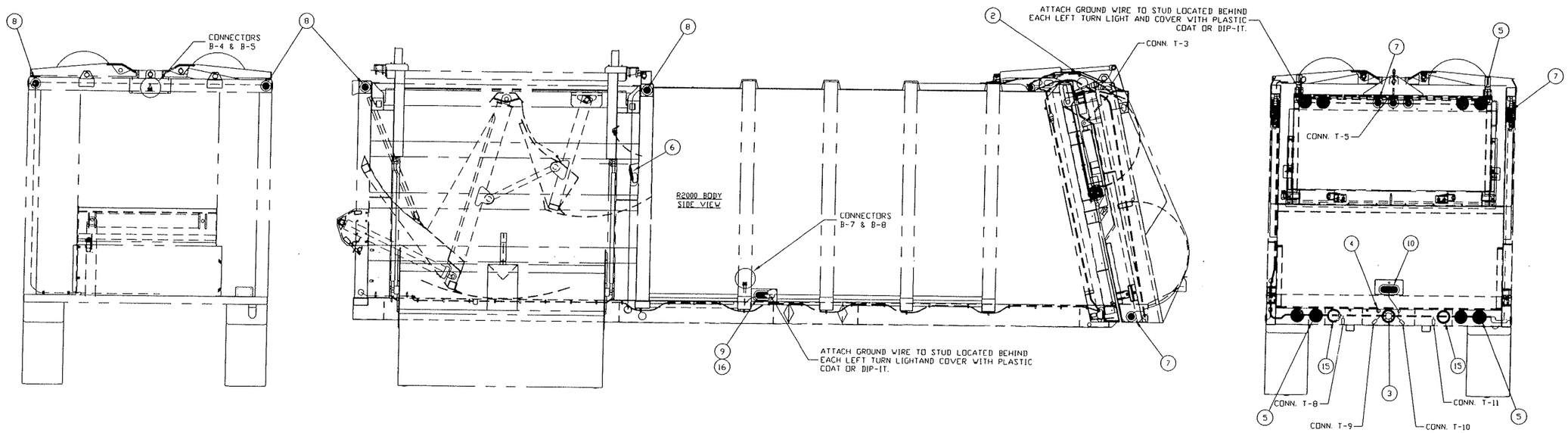


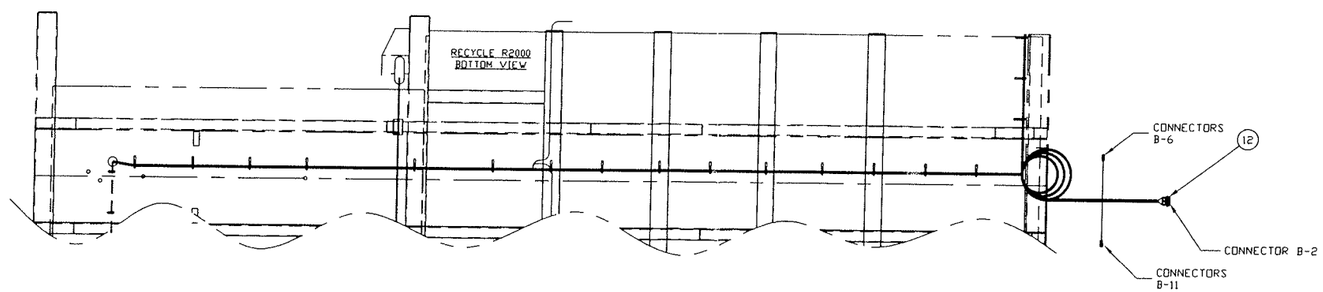


BODY ELECTRICAL LIGHTING
372-2599-002



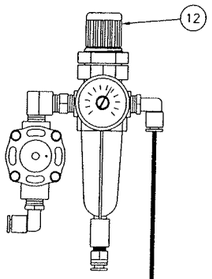
REF.	PART No.	DESCRIPTION	QTY.
1	. 036-1115	PLASTIC TIE	100
2	. 036-1295-002	TUBE CLAMP 7/8"	10
3	. 108-7726	ALARM, BACK-UP	1
4	. 115-0608	LIGHT, LICENSE PLATE	1
5	. 115-1227	LED LIGHT, STOP, TURN/TAIL (RED) 4.00"	8
6	. 115-0743	LIGHT, BACK-UP (CLEAR) 4.00"	4
7	. 115-1230	LED LIGHT, CLEARANCE, (RED) 2-1/2"	7
8	. 115-1231	LED LIGHT, CLEARANCE (AMBER)	6
9	. 115-1228	LED LIGHT MID-TURN (AMBER)	2
10	. 115-1229	LED LIGHT, STOP (RED) OVAL	1
11	. 263-1197-002	HARNESS, TAILGATE (LED LIGHTING)	1
12	. 263-1034	HARNESS, OUTPUT DEVICE R2000	1
13	. FS070720	BOLT, 1/4"-20 X 1"	10
14	. FS230700	LOCKNUT 1/4-20	10
15	. 115-1219	LED LIGHT BACK-UP (CLEAR) 4.00"	2
16	. 115-1035-002	LED ADAPTER	2



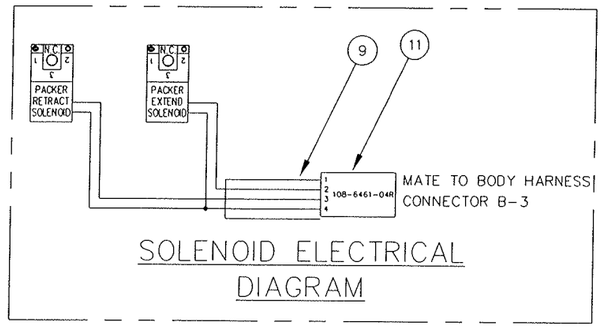


BODY ELECTRICAL LIGHTING (LED)
372-2599-003

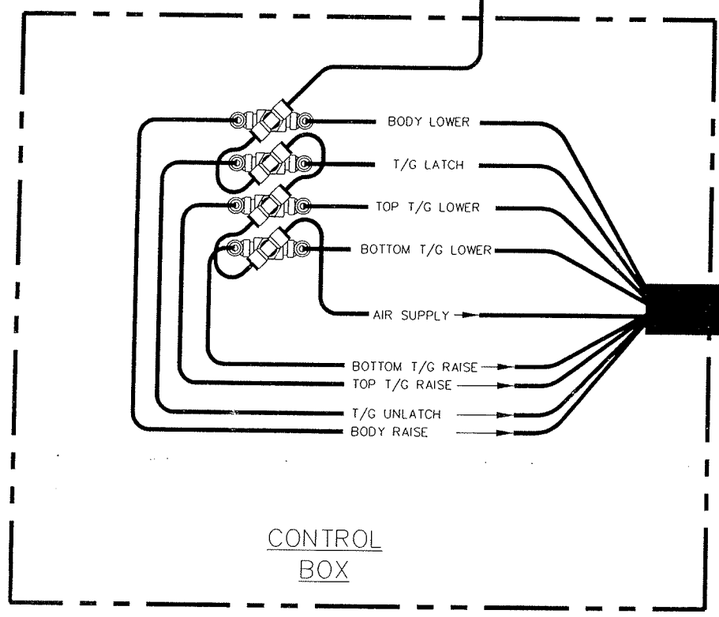
REF.	PART No.	DESCRIPTION	QTY.
1	. 031-5724-012	AIR SOLENOID	2
2	. 036-1290	PLASTIC TIE	20
3	. 054-5449	TUBE, 1/4" AIR LINE	5'
4	. 054-7819	1/4" AIR LINE MULTI-TUBE	25'
5	. 054-8470-004	1/4" TUBE - 1/4" NPT ELBOW	12
6	. 054-8471-003	1/4" TUBE - 1/8" NPT TEE	2
7	. 054-8474-002	1/4" AIR LINE "Y"	1
8	. 054-8927-003	NPT HEX NIPPLE, 1/8"-1/4" BRASS	2
9	. 108-4470	LOOM 3/8"	1'
10	. 108-5354-006	BREATHER VENT 1/8" NPT	2
11	. 108-6461-004	DEUTSCH DT RECEPTACLE 4 PIN	1
12	. 272-7464	AIR SUPPLY KIT	1



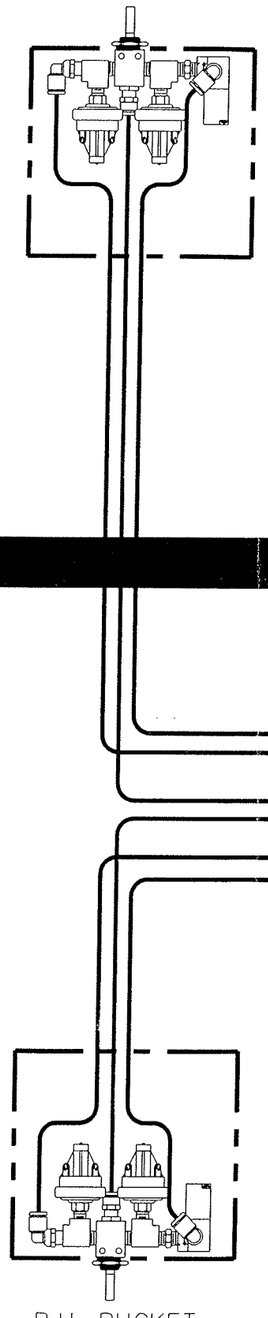
L.H. BUCKET TOGGLE VALVE

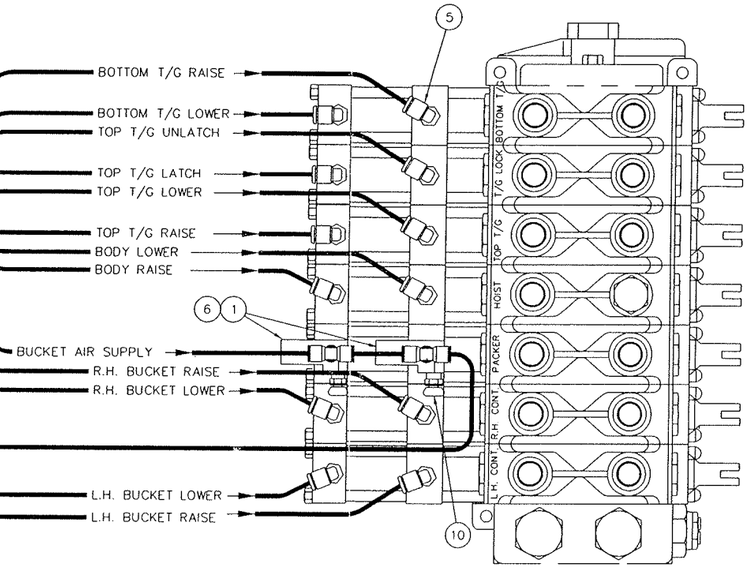


SOLENOID ELECTRICAL DIAGRAM



CONTROL BOX





CONTROL VALVE

R.H. BUCKET TOGGLE VALVE

PNEUMATIC SCHEMATIC
372-2608

All Units



SERVICE MANUAL

SECTION 1
GENERAL INFORMATION

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TP1SMA-10001-0311

Customer Support

Heil Environmental ▪ 4301 Gault Ave. North . Fort Payne, AL 35967-9984· 866.275.4345

All Units

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All Units

SAFETY SYMBOLS AND DEFINITIONS

Listed below are the definitions for the various levels of safety hazards. It is important that the operators of this equipment read and understand safety messages as they relate to this equipment operation.

- **DANGER** – indicates an imminently hazardous situation, which if not avoided WILL result in DEATH or SERIOUS INJURY if you don't follow proper instructions.
- **WARNING** – indicates an imminently hazardous situation, which if not avoided COULD result in DEATH OR SERIOUS INJURY if you don't follow proper instructions.
- **CAUTION** – indicates an imminently hazardous situation, which if not avoided ISSUED DECEMBER result in MINOR to MODERATE INJURY if you don't follow proper instructions.
- **NOTICE** – means unit or other property ISSUED DECEMBER be damaged if these instructions are not followed.

The following safety messages are generally in the Operator's Manual for each specific unit or are generic safety messages if an Operator's Manual does not have these safety messages. Other safety alert messages may be in other sections of the Parts and Maintenance/Adjustment Manual, in other sections of the Parts and Service Manual or in an Operator's Manual. You must read and obey all safety alert messages in any manual produced by Heil to support your unit.

⚠ WARNING

Failure to follow all instructions and safety precautions in this manual, in the Maintenance and Adjustment (or Service) Manual, in other manufacturer's manuals and on the safety decals attached to the product could result in serious injury or death to operators or bystanders and/or damage to property.

DO NOT operate this vehicle before you READ and UNDERSTAND the Operator's Manual, the Parts and Maintenance/Adjustment (or Service) Manual for this unit, other applicable manufacturer's manuals and the safety decals on the product.

Each operator of this unit must read and understand all directions in this manual before they first operate this vehicle.

Keep this manual in the cab for new operators and to remind all operators about safe use.

⚠ DANGER Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand all of the instructions in this manual. Failure to do so can result in injury or death to operators or bystanders.

NOTICE **Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand the instructions in this manual. Failure to do so can result in damage to the unit or other property.**

NOTE: If you do not understand a procedure or instruction, tell the owner or the designated person immediately. Do not operate the unit if you do not understand all procedures and instructions in this manual. The owner or designated person can contact your Heil dealer or Heil for additional help. See page the operator's manual for contact information.

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All Units

WARNING **Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all unnecessary people before you operate the controls.**

DANGER **Do not enter the hopper unless the unit is in the lock-out mode. When the unit is not in the lock-out mode and a person is in the hopper, the packer panel or the crusher panel can be operated. Serious injury or death can occur if the packer panel or the crusher panel moves while a person is in the hopper.**

DANGER **Always prop the tailgate when you leave it raised for maintenance, service or cleaning procedures. Any part of your body between the unit's body and the tailgate while you prop the tailgate or when the tailgate is propped is dangerous. Serious injury or death can occur if any part of your body is between the tailgate and the body if the tailgate suddenly closes.**

DANGER **A tailgate in motion is dangerous. Serious injury or death can occur if a person is struck by a moving tailgate or becomes trapped between the tailgate and the body. Clear the area near the tailgate of all unnecessary people before you lower the tailgate.**

DANGER **The packer and crusher panels are dangerous. They can cause serious injury or death if a person is inside the hopper. Make sure no one is inside the hopper before you begin a packer or crusher function. Put the unit in the lock-out mode if a person is in the hopper.**

DANGER **Any part of your body between the unit's body and the chassis or cylinders while you raise the body is dangerous. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body. Keep all parts of your body out from underneath the unit's body and away from the cylinders during this procedure.**

DANGER **Do not raise a body that has refuse while you do maintenance or service procedures. Refuse in the body can make the unit unstable. Always unload refuse from the body before you raise it for maintenance or service procedures. Always use the body props when you raise the body for maintenance or service procedures.**

WARNING **Raising the body with the tailgate closed can damage the underride bumper. The underride bumper can hit the ground when the tailgate is not fully raised before you raise the body. Serious injury or death can occur and also cause damage to the unit.**

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All Units

WARNING **Clear all people of the area before you lift a refuse container. Make sure the refuse is secure in the refuse container before you lift the container. Loose refuse can fall and cause serious injury or death.**

CAUTION **Grabbing a refuse container with too much pressure can damage the container. Pieces of the container can "fly" off the container and cause moderate or minor injury to a bystander. Use enough pressure with the grabber to raise the container with the lift arm and not damage the container.**

NOTICE **Grabbing a refuse container with too much pressure can damage the container. The container can become unusable. Use enough pressure with the grabber to raise the container with the lift arm and not damage the container.**

CAUTION **A container that is not locked to the container lift mechanism is dangerous. The container can fall off the container lift mechanism and cause minor or moderate injury. Make sure you engage and lock the container latch bars before you lift the container.**

WARNING **Make sure the unit is in the lock-out mode when you do maintenance or service procedures, or when you go in the hopper, climb on the body or equipment. Equipment can be operated when the unit is not in the lock-out mode. When the unit is not in the lock-out mode, equipment operated while you do maintenance or service procedures, go in the hopper or climb on the body or equipment can cause serious injury or death.**

DANGER **Make sure the unit is on firm, stable ground before you raise the body and clear the area of all unnecessary people. Do not prop a body unless it is on firm, stable ground. A unit not on firm, stable ground can roll when raising or propping the body. This can cause serious injury or death to you or bystanders.**

DANGER **This procedure is dangerous if not performed correctly or equipment fails. Serious injury or death can occur from equipment falling or breaking. Clear the area of all people not necessary for the procedures and correctly perform the procedure. Do not go under the chassis during this procedure.**

DANGER **A full or partially full load of refuse is dangerous while you lower the body with inoperative controls. Refuse in the body can make the unit unstable and cause it to overturn. Serious injury or death can occur if the unit overturns due to instability caused by the loaded refuse. REMOVE the refuse before you block the body.**

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All Units

DANGER **Lifting equipment that does not have sufficient lifting capability is dangerous. Equipment can fail and cause serious injury or death to the operator or bystanders. Make sure the lifting equipment has sufficient lifting capability and clear ALL persons not involved with the procedure away from the area.**

DANGER **The lifting equipment can fail. Serious injury or death can occur if the lifting equipment breaks and the body falls or the unit rolls over. Do not place your body or limbs between the unit's body and chassis while you remove the body-supporting timbers. Be attentive and prepared to move quickly away from the unit in the event there is an equipment failure.**

WARNING **The hydraulic fluid can be under pressure and can spray while you open the connection. Hydraulic fluid can cause damage to your eyes, hands or skin. Wear protective eye glasses, gloves and other clothing as necessary to protect you from the hydraulic fluid.**

WARNING **A unit that needs service or repair can malfunction and create a dangerous condition. A part failure during operation can cause serious injury or death to a person or damage to the unit. Repair or replace any failed or defective part immediately.**

DANGER **Contact of the unit with overhead electric lines is dangerous. Serious injury or death can occur. Make sure there is adequate overhead clearance before you raise the container. If the unit does make contact with overhead electric lines do not touch any metal in the cab. Stay in the unit until help arrives.**

NOTICE **Grabbing a refuse container with too much pressure can damage the container. The container can become unusable. Use enough pressure with the grabber to raise the container with the lift arm and not damage the container.**

WARNING **Improper dumping of the refuse can cause the unit to tip or rollover. Serious injury or death can occur if the unit rolls or tips over. Empty as much refuse as you can with the packer panel before you raise the body.**

DANGER **Make sure the unit is on firm, stable ground before you raise the body and clear the area of all unnecessary people. Do not prop a body unless it is on firm, stable ground. A unit not on firm, stable ground can roll when raising or propping the body. This can cause serious injury or death to you or bystanders.**

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WARNING **Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised can make the body unstable and tip or roll the unit over. This can result in injury or death to the operator and damage the unit. Use only sufficient movement to loosen the load so that it will leave the body.**

NOTICE **Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised puts a very high load on the body raise cylinders and could damage one or both cylinders and make the body unstable unable to lower. Inspect the cylinders after you dump each load and replace if necessary.**

WARNING **Isopropyl alcohol is flammable and is harmful to eyes and skin. Keep isopropyl alcohol away from heat or open sources of ignition. Flush eyes and skin with water for 15 minutes after contact. Seek immediate medical help.**

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LOCK-OUT/TAG-OUT PROCEDURES

WARNING **Make sure the unit is in the lock-out mode when you do maintenance or service procedures, or when you go in the hopper, climb in or on the body or on equipment. Equipment can be operated when the unit is not in the lock-out mode. When the unit is not in the lock-out mode, equipment operated while you do maintenance or service procedures, go in the hopper or climb in or on the body or on equipment can cause serious injury or death.**

Put the DuraPack® 5000 unit in a lock-out condition:

- **BEFORE** you enter the unit's body.
- **BEFORE** you climb or stand on the body or roof.
- **BEFORE** you do maintenance, repair or cleaning procedures on the unit.

Follow These Steps:

1. APPLY the brakes. **MAKE SURE** the brakes do not let the unit move and they work properly.
2. CHOCK all wheels.
3. SET the tailgate props when you raise the tailgate for service, maintenance or cleaning.
4. SET the body props when you raise the body for service, maintenance or cleaning.
5. Turn the engine OFF.
6. When there are in-cab controls, TURN the ignition switch to ON then:
   - Move the switches of the hydraulic controls. This relieves the pressure in the cylinders.
   - Turn the ignition switch to OFF.
7. When there are no in-cab controls, move the outside control levers to relieve the pressure in the cylinders.
8. Put a LOCK-OUT TAG onto the STEERING WHEEL.
9. REMOVE the ignition key from the cab, lock the vehicle and put the key in a secure location.



Lock-Out (Do Not Operate) Tag

NOTE: You can order lock-out tags (Part No. 212-1586) through your Heil Dealer or through Heil.

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IMPORTANT!

- Before starting any maintenance, study this section of the manual.
- Read all safety messages and decals on the unit.
- Clear the area of other persons before performing any maintenance.
- Know and understand safe use of all controls.
- It is your responsibility to understand and follow manufacturer's instructions on equipment and care.

SAFETY DECALS ON THE UNIT

Make sure you can read all safety and instruction decals. Clean decals if you cannot read the words. See page 121 for directions on cleaning decals.

Decals must be replaced if the decal is damaged, the decal is missing, or the decal is not readable.

If a decal is on a part that is replaced, make sure a new decal is installed on the new part. See the Parts and Service manual for a complete decal kit and individual decals. Order the decal kit or individual decals from your Heil Dealer or from Heil.

STORING REFUSE IN THE BODY

Heil does not recommend storing refuse in the body overnight. The different types of debris and corrosive elements usually collected can cause severe corrosion inside the body decreasing the life of your body. This corrosion can affect unloading and decrease the structural life of the body. In addition, storing refuse in the body overnight can increase the risk of fire.

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INTRODUCTION

The following sections are a guide for maintenance and service of the Heil unit. It covers preventive maintenance, adjustment and troubleshooting hints.

In order to diagnose a problem quickly and effectively, a service person must be thoroughly familiar with the machine. This section explains the system and major components to give that knowledge. Diagrams and schematics of the electrical and hydraulic systems are in Service Manual Section 10.

SERVICE/PARTS ASSISTANCE

Assistance in troubleshooting repair and service is available by contacting the authorized Heil Dealer in your area. Heil personnel are trained to give prompt, professional assistance. ALWAYS give the machine model and serial number in all correspondence relating to the equipment.

LUBRICATION INFORMATION

Before performing maintenance, check the job carefully to find all the hazards present and make sure all necessary safeguards or safety devices are used to protect all persons and equipment involved.

HYDRAULIC OIL SPECIFICATIONS

Heil hydraulic oil (MV32) contains the following specifications.

Gravity	API (ASTM D-287) 31.0
Specific Gravity @ 60°F (15.6°C)	(ASTM D-287) 0.8780
Flash Point	(ASTM D-92) 410°F
Pour Point	(ASTM D-97) -60°F
Viscosity @100°F @210°F	 SUS (ASTM D-445 & ASTM D-2161) 153 SUS (ASTM D-445 & ASTM D-2161) 47.3
Viscosity Index	(ASTM D-2270) 155
Rust Protection	(ASTM D-665 A & B) Pass
Foam Test	(ASTM D-892) Pass
Four-Ball Wear Test	(ASTM D-4172) (40kg, 1800RPM), 130°F, 1 hr) 0.66
Zinc %wt.	(XRF) .04

NOTE: Cold weather operation requires special oil considerations. Viscosity should not exceed 7500 SSU at lowest startup temperature. Continuous operation should range between 40-1000 SSU for all temperature ranges.

The following oils by brand name are approved for use in the hydraulic system on this equipment and considered to be all temperature hydraulic fluids.

- Pennzoil Pennzbell AWX MV32
- Mobil DTE 13M
- Shell Tellus T32
- Texaco Rando HDZ 32

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OIL CAN LUBRICANT RECOMMENDATION

Use only non-detergent engine oil to lubricate all moveable mechanical parts not furnished with grease fittings. Apply sufficient oil to give good lubrication, but do not bathe parts in oil. Always wipe off excess.

GREASE LUBRICANT RECOMMENDATION

Use a grease gun. Before engaging grease gun, clean the fitting. Always pump enough grease to purge the joint of contaminated grease and wipe off the excess.

WINCH GEAR OIL

Use AGMA Grade 5 EP (90wt.) for an 8,000 lb. winch and AGMA Grade 7 EP (140 wt.) for a 12,000 lb. winch.

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CHECK OIL LEVEL

Check the oil level every eight (8) hours.

Important: Contamination is a hydraulic system's worst enemy. **DO NOT** let dirt enter the system. Use a clean rag and remove dirt or other contamination around any system component before you disconnect or remove it. While you fill the reservoir, filter the oil through a 200 mesh (or finer) screen. **NEVER** use a cloth to filter the oil.

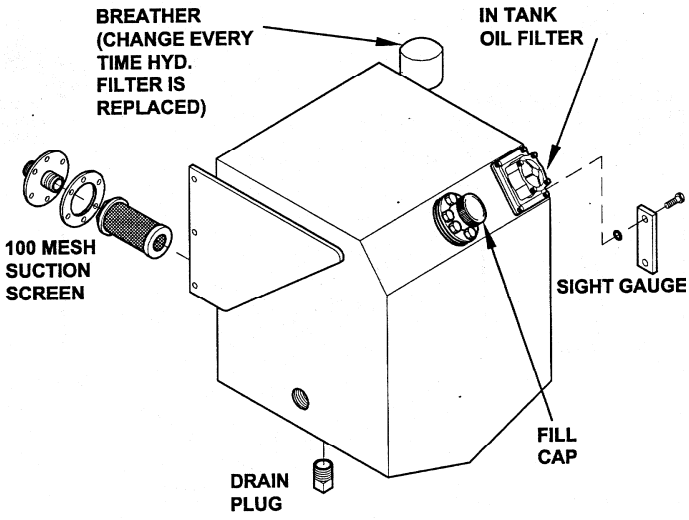
HYDRAULIC OIL TANK

Before checking the oil level, make sure the unit is in the following position:

- Truck – on level ground
- Tailgate and Body – fully down and locked.
- Packer Panel – in the in-transit position with all cylinders retracted.
- Lift Arm (if equipped) – is fully retracted.

The oil level in the standard tank must be kept between the low and full marks as indicated on the sight gauge.

The oil tank is mounted behind the chassis cab. Fill it to the level indicated on the sight gauge or between the two lines on the oil level decal.





Sight Gauge and
Oil Level Decal

CHANGE FILTER ELEMENT

Change the filter more often under certain conditions such as an extremely dusty atmosphere or area. Use only Heil replacement filters. Purchase the filter element from your local Heil distributor.

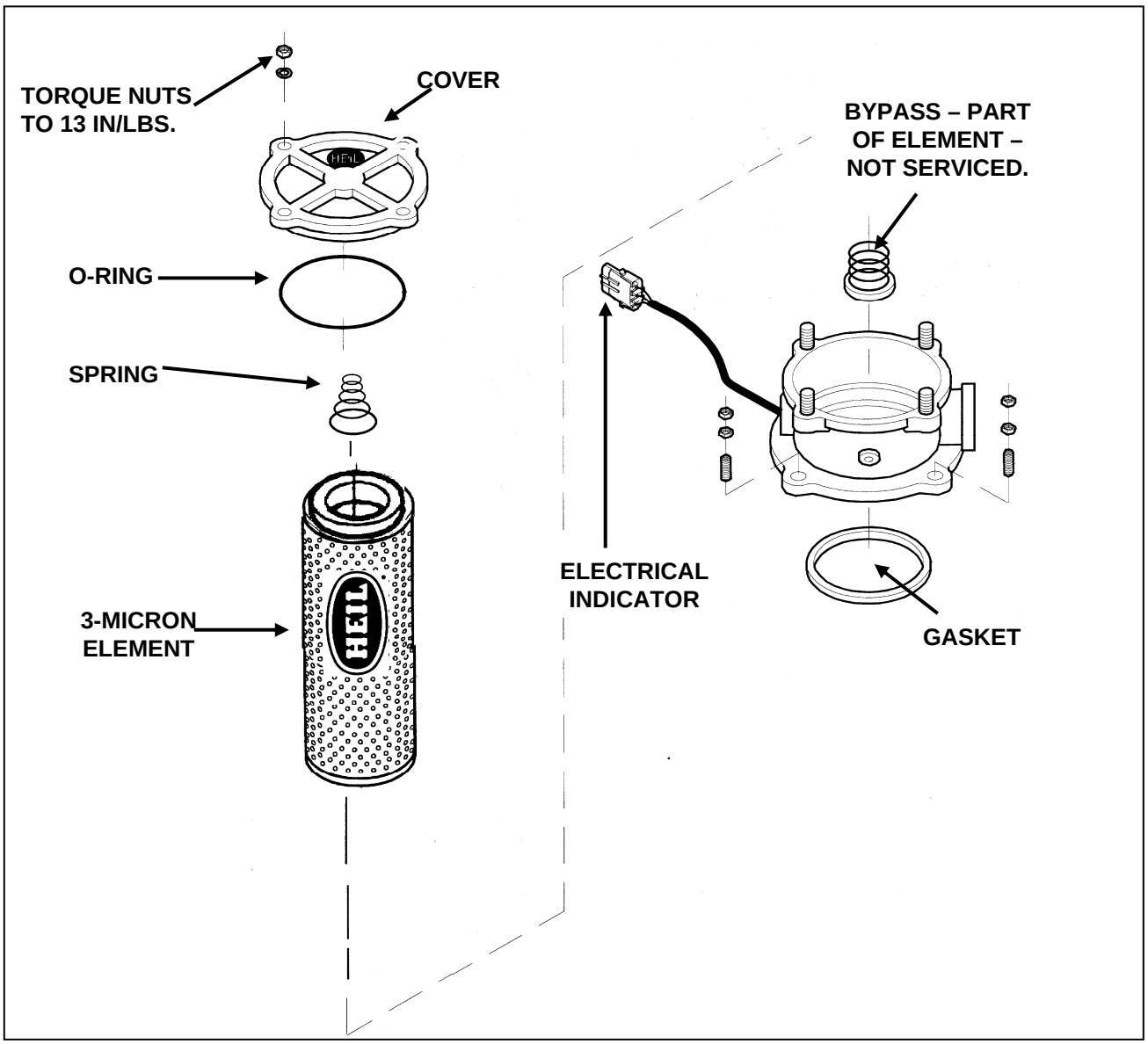
Change the filter element every 1000 hours or every six (6) months or when indicated by the filter monitor light located in the cab.

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CHANGE HYDRAULIC OIL FILTER

To change the hydraulic oil filter, follow these steps:

1. Remove nuts and filter cover.
2. Remove the filter element with the by-pass assembly and discard as required.
3. Clean the housing with a clean, lint-free cloth.
4. Check the o-ring and gasket. Replace them if necessary.
5. Lubricate all o-rings and gaskets.
6. Install new element.
7. Reinstall cover with nuts. Tighten nuts to 13 in/lbs.



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DRAIN AND CLEAN THE HYDRAULIC OIL TANK

Change the hydraulic oil at least annually or every 2000 hours of operating time, whichever comes first.

Remember that almost all hydraulic system malfunctions can be traced to dirt in the fluid. When working with the hydraulic system, the hands, tools, working area and parts must be as clean as possible.

CAUTION **Wear proper eye protection when you are working on or around hydraulic lines or components. Wear proper eye protections and avoid contact with hydraulic oil if possible. Never check for oil leaks with your hands.**

To drain and clean the hydraulic oil tank, follow these steps:

1. Disengage the pump, shut off the engine and remove the ignition key.
2. Perform the Lock Out/Tag Out procedure. (See Section 1)
3. Remove the fill cap from the top of the tank.
4. Remove the drain plug from the bottom of the tank so that the oil drains into a container.
5. While fluid is draining from the tank, remove and replace the filter/breather assembly. Change the assembly every time the in-tank filter is replaced.
6. To drain the entire hydraulic system, disconnect all hoses at the adapter and drain the hoses into a container.
7. Remove and replace the in-tank filter as described in Change Hydraulic Oil Filter on page 8.
8. Remove the outlet flange and 100 mesh suction strainer to gain access to the tank inside.
9. Remove sediment from the tank bottom.
10. Install the outlet flange with a new gasket and the 100 mesh suction strainer into the tank.
11. Install the drain plug in the tank bottom.
12. Reconnect and tighten all hose connections that were disconnected.
13. Fill tank with recommended oil, checking the sight gauge as you fill.

    NOTE: Before filling the tank be sure the funnel is clean and 200 mesh (or finer) screen is used to strain the hydraulic oil.
14. Check the entire system to make sure all connections are tight and no leaks are found.
15. Start the truck's engine and engage the pump.

WARNING **Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all unnecessary people before you operate the controls.**

16. Operate the packing panel through 10 cycles to be sure all air is out of the circuits.
17. Operate the automated container lift mechanism.
18. Operate tailgate – full up and full down.
19. Operate body raise (dump units) – full up and full down.
20. With the packing panel in the retracted position and lift in the in-transit position, check tank oil level. If necessary, add recommended as described under "Hydraulic Oil Tank".

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PURGE HYDRAULIC SYSTEM

If the hydraulic system becomes contaminated because of component failure or some other reason, you must purge the hydraulic system. To purge the system, follow these steps:

CAUTION **Wear proper eye protection when you are working on or around hydraulic lines or components. Wear proper eye protections and avoid contact with hydraulic oil if possible. Never check for oil leaks with your hands.**

1. Extend the packer/ejector cylinder to lower the oil level in the tank.
2. Remove and replace the in-tank oil filter element in the tank.
3. Engage the packer/ejector control lever and allow the oil to circulate through the new filter, cleaning the oil.

   NOTE: Before filling the tank be sure the funnel is clean and 200 mesh (or finer) screen is used to strain the hydraulic oil.
4. Repeat the procedure as necessary until the system is purged.

If contaminated hydraulic oil reaches the cylinders, the unit can need to be removed from service until the contamination is removed. For more information, contact the Heil field service department.

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PARTS ORDERING
&
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STANDARD TORQUE DATA FOR NUTS AND BOLTS

The following recommended torque data is for use as a general guideline.

NOTE: Torque specifications on a drawing override torque values in the table below.

Recommended torque, in foot pounds, for all Standard Application nuts and bolts provided:

- All thread surfaces are clean and lubricated with SAE-30 engine oil. (See note.)
- Joints are rigid, that is no gaskets or compressible materials are used.
- When re-using nuts or bolts use minimum torque values.

NOTE: Multiply the standard torque by:

- .65 when finished jam nuts are used.
- .70 when Molykote, white lead or similar mixtures are use as lubricants.
- .75 when parkerized bolts or nuts are used.
- .85 when cadmium plated bolts or nuts and zinc bolts w/waxed zinc nuts are used.
- .90 when hardened surfaces are used under the nut or bolt head.

Bolt or Stud	Type 1 Studs Only		Type 1 Bolts 6" or less		Type 1 Bolts Longer than 6"		Type 5 All Lengths		Type 8 All Lengths			
									Only when used in cast (gray) iron*		All other applications	
Diameter	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1/4	5	6	5	6	3	3	9	10	11	13	12	14
5/16	12	13	12	13	6	7	19	21	24	27	27	30
3/8	21	24	21	24	11	13	33	37	43	47	45	50
7/16	35	38	35	38	19	21	53	60	69	76	75	85
1/2	52	28	52	58	29	32	80	90	104	117	115	130
9/16	70	80	70	80	41	46	115	130	150	170	165	185
5/8	98	110	98	110	57	63	160	180	210	230	220	250
3/4	174	195	174	195	100	112	290	320	350	390	400	450
7/8	300	330	162	181	162	181	420	470	570	630	650	730
1	420	470	250	270	250	270	630	710	350	950	970	1090
1 1/8	600	660	350	380	350	380	850	950	1200	1350	1380	1550
1 1/4	840	940	490	540	490	540	1200	1350	1700	1900	1940	2180
1 3/8	1100	1230	640	710	640	710	1570	1760	2300	2500	2600	2800
1 1/2	1470	1640	850	940	850	940	2000	2300	3000	3300	3300	3700
1 3/4	2350	2450	1330	1490	1330	1490	3300	3700	4700	5200	5300	6000
2	3500	3900	2000	2200	2000	2200	5000	55000	7000	7800	8000	9000

*When bolt penetration is 1 1/2 times the diameter of the bolt.

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BOLT TYPE IDENTIFICATION CHART

IH Type	S.A.E. Grade	Description	Bolt Head Marking**
1	1 or 2	No radial lines. Low or medium carbon steel not heat treated. NOT USED, replace with same grade bolt.	
5	5	Three radial lines. Quenched and tempered medium carbon steel.	
8	8	Six radial lines. Quenched and tempered special carbon or alloy steel	

COLD WEATHER WARM UP PROCEDURE

When air temperatures are cold, it can be necessary to warm up the unit's hydraulic oil before you start your daily route operation. Follow these steps:

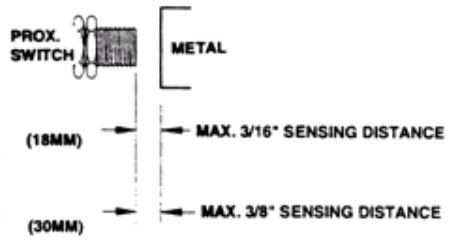
1. Start the truck and let the engine idle.
2. **APPLY** the parking brake and make sure it holds.
3. Engage the hydraulic pump for approximately five minutes.

WARNING **Moving parts on the unit are dangerous. Serious injury or death can occur if a person is struck by the equipment. Clear all people of the area before you operate the unit**

4. **MAKE SURE** the area around the unit is clear of all people before you operate the controls.
5. Operate the lift and body hydraulic functions through 10 (ten) cycles while the engine idles. This warms the hydraulic oil.
6. Check for fluid leaks again. Repair if necessary.
7. The unit is now ready to go on route.

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PROXIMITY SWITCH TROUBLESHOOTING

Problem	Probable Cause	Remedy
Switch Failure	Loose or corroded electrical connections.	Replace the electrical connections.
	Damaged Switch A. Cracked Ferrite core causing the fine internal wire to break. B. Cracked Ferrite core – but wire is not broken – the sensitivity of switch will increase which causes sensing distance to increase or switch ISSUED DECEMBER work intermittently as the temperature changes.	1. DO NOT strike switch to make it work. 2. When adjusting the switch, take care not to damage the switch. 3. DO NOT adjust switch too close to the metal it is sensing.
	Voltage spikes from truck chassis electrical system will breakdown the internal electronics of the proximity switch.	1. A clean power source from the chassis manufacturer. 2. The body electrical systems is protected from voltage spikes. **NOTE:** Heil proximity switches have a Light Emitting Diode (LED) on the switch to indicate that the switch is sensing metal. The light changes color when the switch senses metal. **Green** indicates the light is ON. **Yellow** indicates the switch senses metal.
	Improper Sensing Range	Adjust proximity switches to sense metal as follows: 

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Problem	Probable Cause	Remedy
	If proximity switch LED light is NOT ON.	1. Unplug proximity switch*. 2. Check the signal wire (terminal A) by grounding it to the body. The PLC light (in cab) will come on if the signal is working. 3. Check the ground wire by jumping it and the signal (A and B). 4. Check the Hot wire (terminal C) with a test light. 5. If all three (3) wires are good, replace the proximity switch. *If the PLC light stays on when a switch is uplugged, the signal wire is shorted to ground.

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BATTERY DISCONNECT SWITCH

The figure below shows the location of a typical battery disconnect switch on the battery box. The battery box can look different and can be at a different location on different chassis. Become familiar with the location of the battery box and battery disconnect switch on your unit.

WARNING **The battery disconnect switch must be turned off whenever the vehicle is not in service and/or to be left unattended.**

Battery cables must be securely anchored and not rubbing other equipment. Cable insulation must be fee of damage and abrasion. Inspect weekly.



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DECAL CARE

It is important that the decals are properly cleaned to make sure that they are readable and do not come off the unit. Use the following steps to clean the decals.

GENERAL INSTRUCTIONS

Following these instructions helps the decals adhere longer.

- Wash the decals with a blend of mild car wash detergent and clean water.
- Rinse with clean water.
- Let the vehicle air-dry or dry with a micro-fiber cloth.
- Do not allow fuels to stay in contact with the decal for an extended period of time. Remove the fuel contamination as quickly as possible.
- Do not use carnauba-based wax over the decals.
- Do not use a mechanical brush while washing the decals.

PRESSURE WASHER PRECAUTIONS

Pressure washing can cause damage to decals. It can cause the edges of the decals to lift and peel the decal away from the unit. Over time, the decal can fade, crack or chip away.

Use pressure washing only when other cleaning methods are not effective. If you use a pressure washer, use the following precautions.

- Spray nozzle opening: 40° wide pattern
- Spray angle: 65° from vehicle' s body
- Distance of nozzle to decal: 15" minimum
- Water pressure: <= 800 psi
- Length of time: not more than 30 sec.
- Do not use sharp angles to clean the decals – this can lift the decals from the unit.
- NEVER use a "turbo pressure nozzle".

REMOVE DIFFICULT DEBRIS

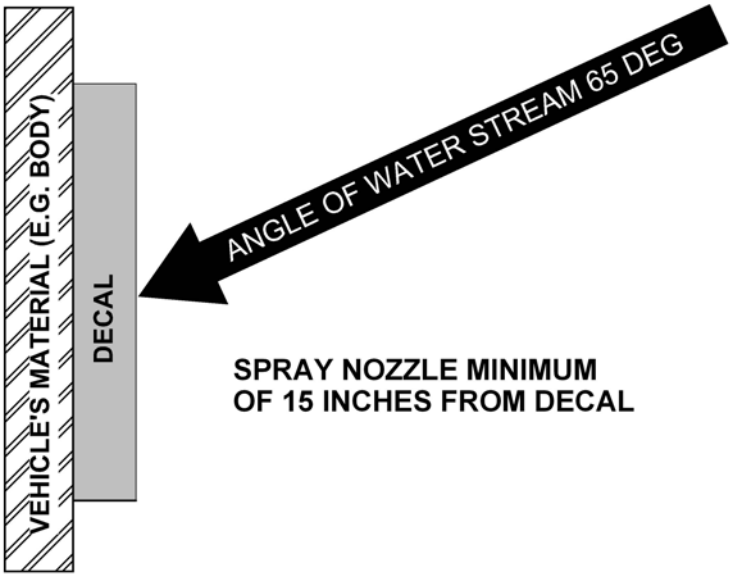
When normal cleaning procedures do not remove difficult debris from the decals, try the following:

WARNING **Isopropyl alcohol is flammable and is harmful to eyes and skin. Keep isopropyl alcohol away from heat or open sources of ignition. Flush eyes and skin with water for 15 minutes after contact. Seek immediate medical help.**

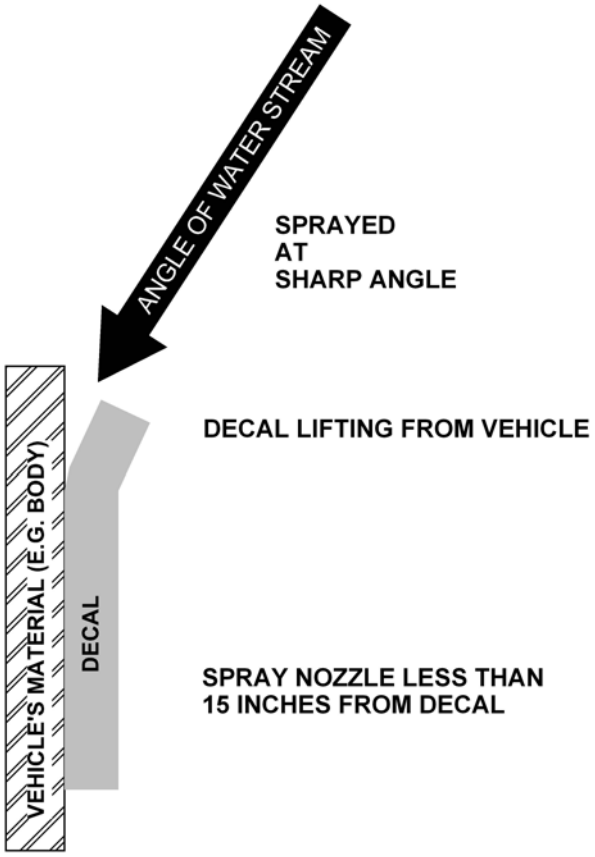
- Spot clean the decal with Isopropyl Alcohol and a micro-fiber cloth (rag).
- If these methods do not work on a problem area, call a Heil Dealer or Heil Customer Support.

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RECOMMENDED TECHNIQUE



INCORRECT TECHNIQUE

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SERVICE MANUAL

SECTION 3
PUMPS

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Customer Support

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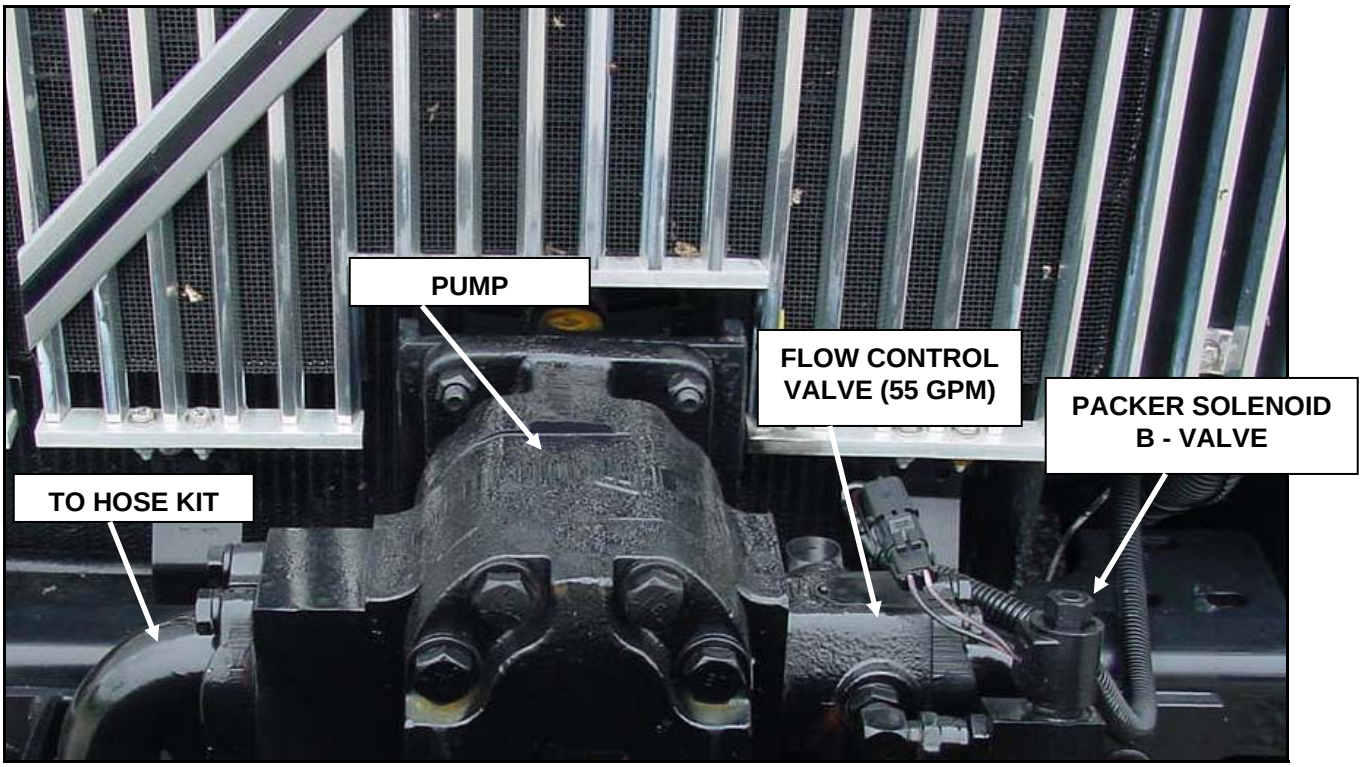
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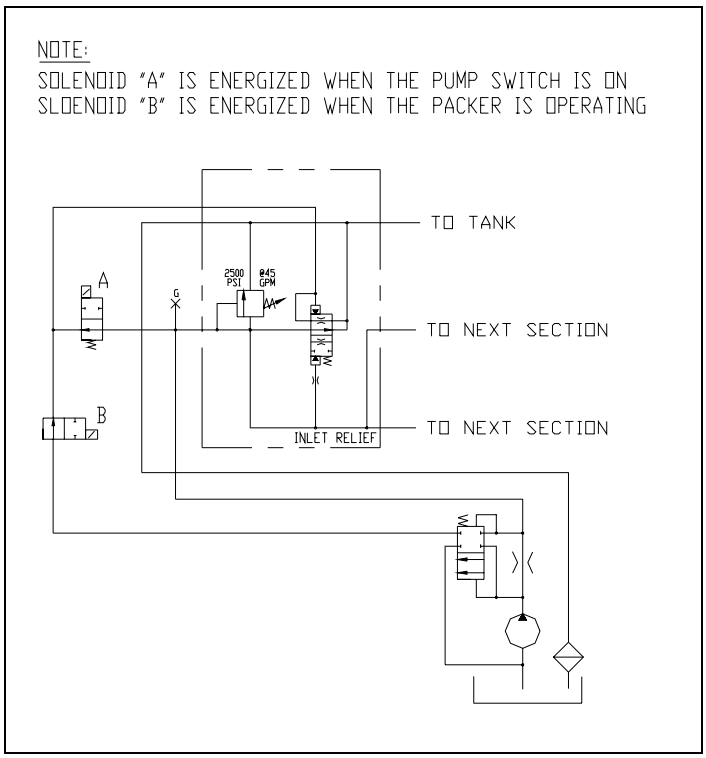
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COMMERCIAL FRONT MOUNT (HOC) FOR PYTHON – USED ON EARLIER MODELS





The HOC system is designed to unload the hydraulic system when the pump flow exceeds 55 GPM.

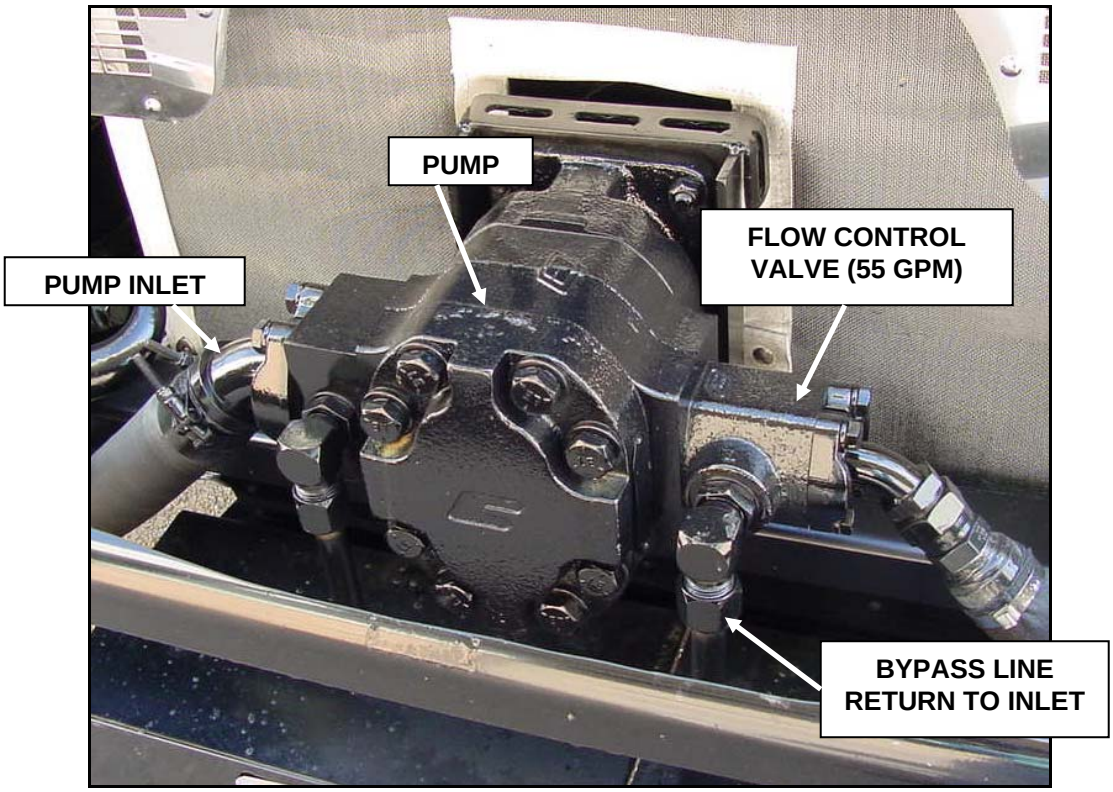
Hydraulic system unloading occurs when the pressure drop across the flow control orifice reaches 50 PSI.

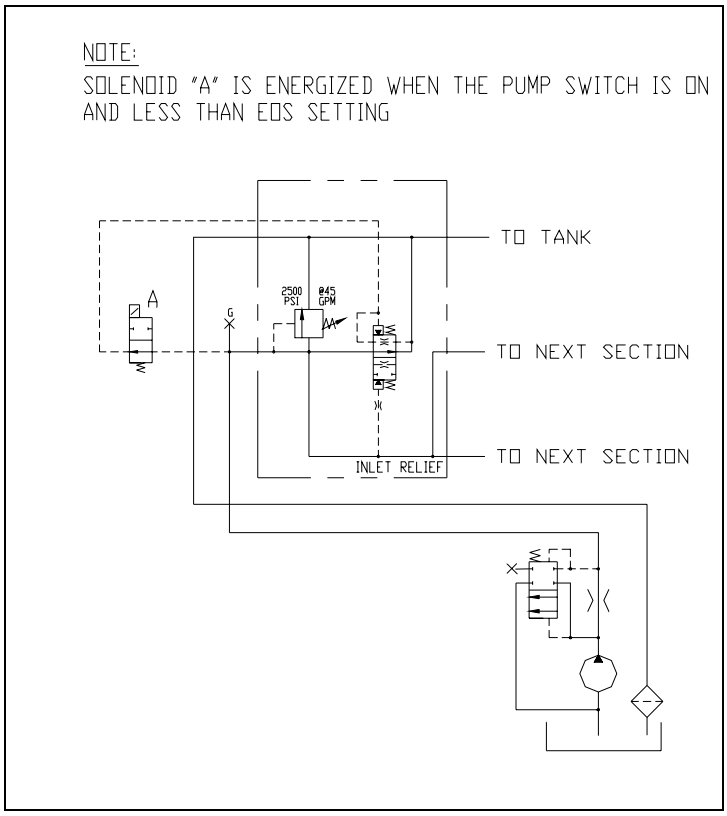
To restore power to the hydraulic system, the operator must lower the engine speed 300 to 400 RPM below the HOC speed setting.

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PYTHON COMMERCIAL FRONT MOUNT (HOC) – LATER UNITS





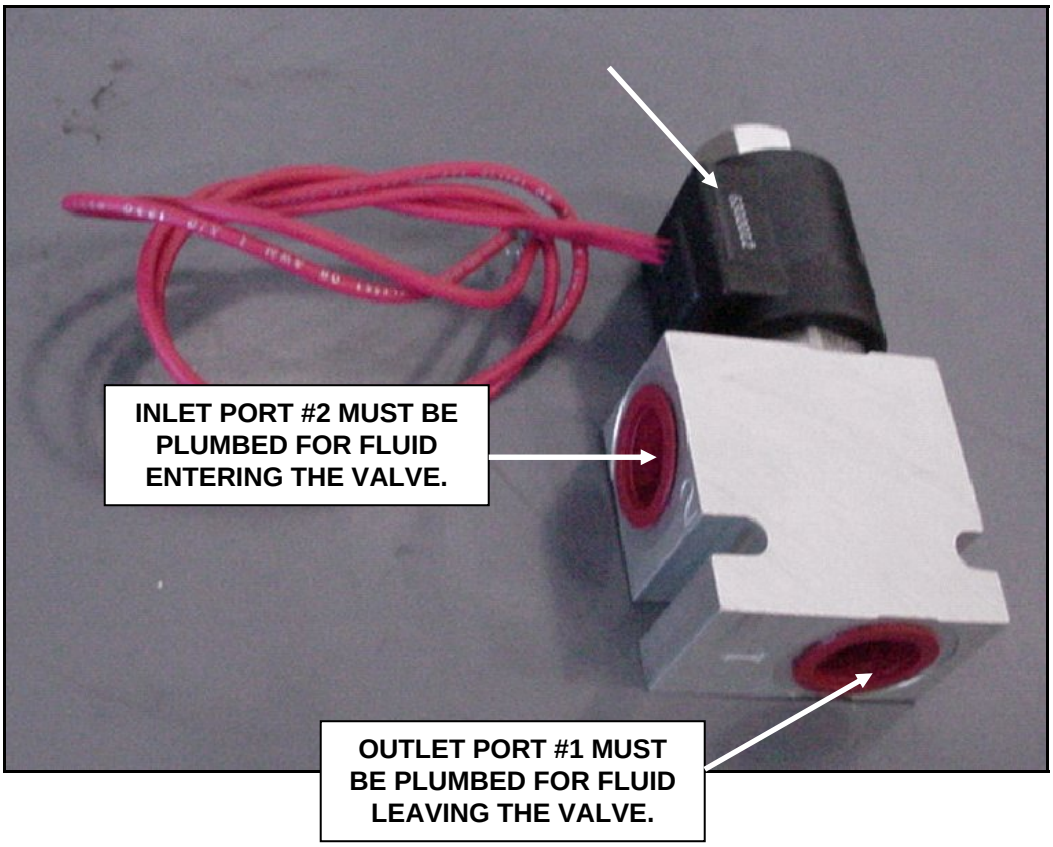
The HOC system is designed to unload the hydraulic system when the pump flow exceeds 55 GPM.

Solenoid A is located on the lift control valve. See Section 2 – Lift Service Manual for more information.

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PUMP SHUT-OFF VALVE – USED WITH COMMERCIAL HOC SYSTEM



This pump shut-off valve style normally opens and closes when the coil is activated. The valve does not have a plumbing schematic but must be plumbed one way to function properly. Fluid must enter port #2 and exit port #1.

Caution: Failure to plumb the pump shut off valve in this manner may cause system malfunction or “system chatter”.

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FLOW CONTROL VALVE TESTING FOR HOC PUMP

Follow these steps to test the flow control valve.

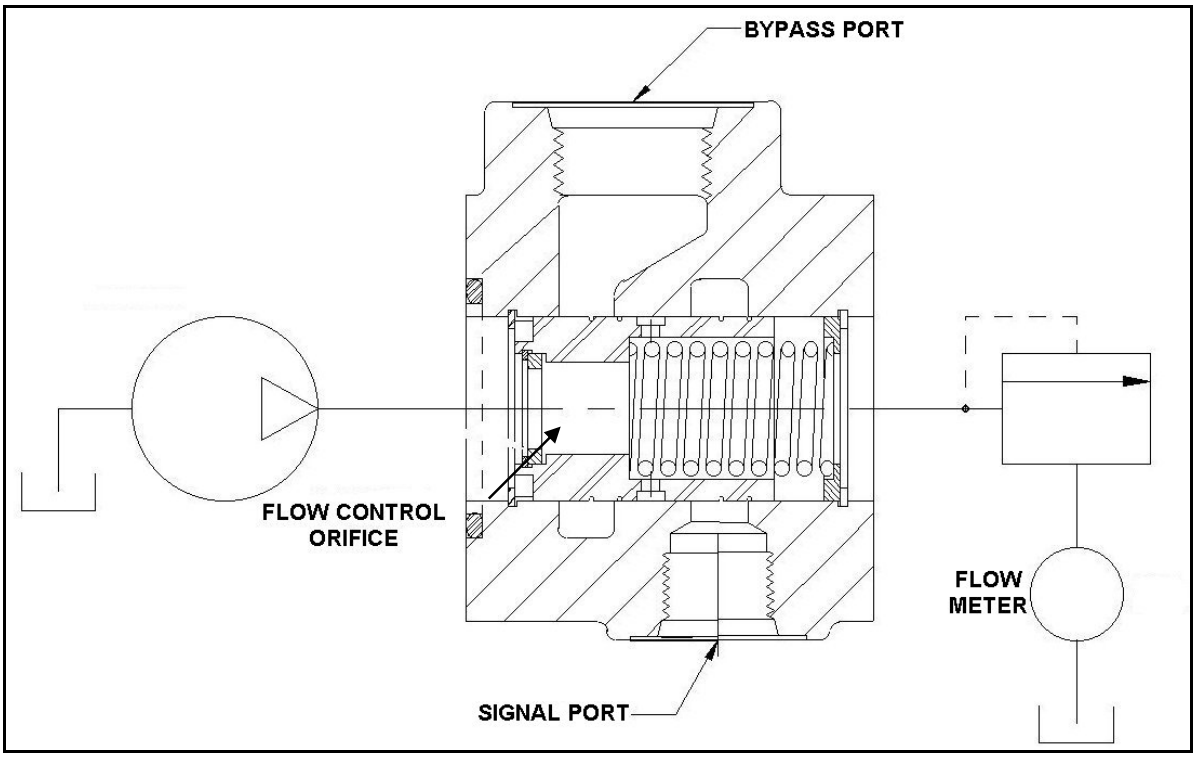
BYPASS AND BINDING TEST

1. Warm hydraulic system temperature to 120°F.
2. Increase oil flow through the flow control valve until you reach 55 GPM.
3. When the oil starts flowing from the bypass port, record the flow going through the valve. The oil should bypass at +/- 3 GPM of the 55 GPM flow.
4. Cycle two or three more times to be sure valve spool moves freely and does not bind.
5. If the valve exceeds 55 GPM, check for the correct orifice in the spool.

FLOW CONTROL LEAKAGE TEST

Check valve spool leakage by running 50 GPM (5 less than the actual flow of 55 GPM) through the valve with 1100 PSI on the flow control valve outlet. The flow control leakage should not exceed 1000 CC/minute (about 1/4 GPM) from the valve signal port.

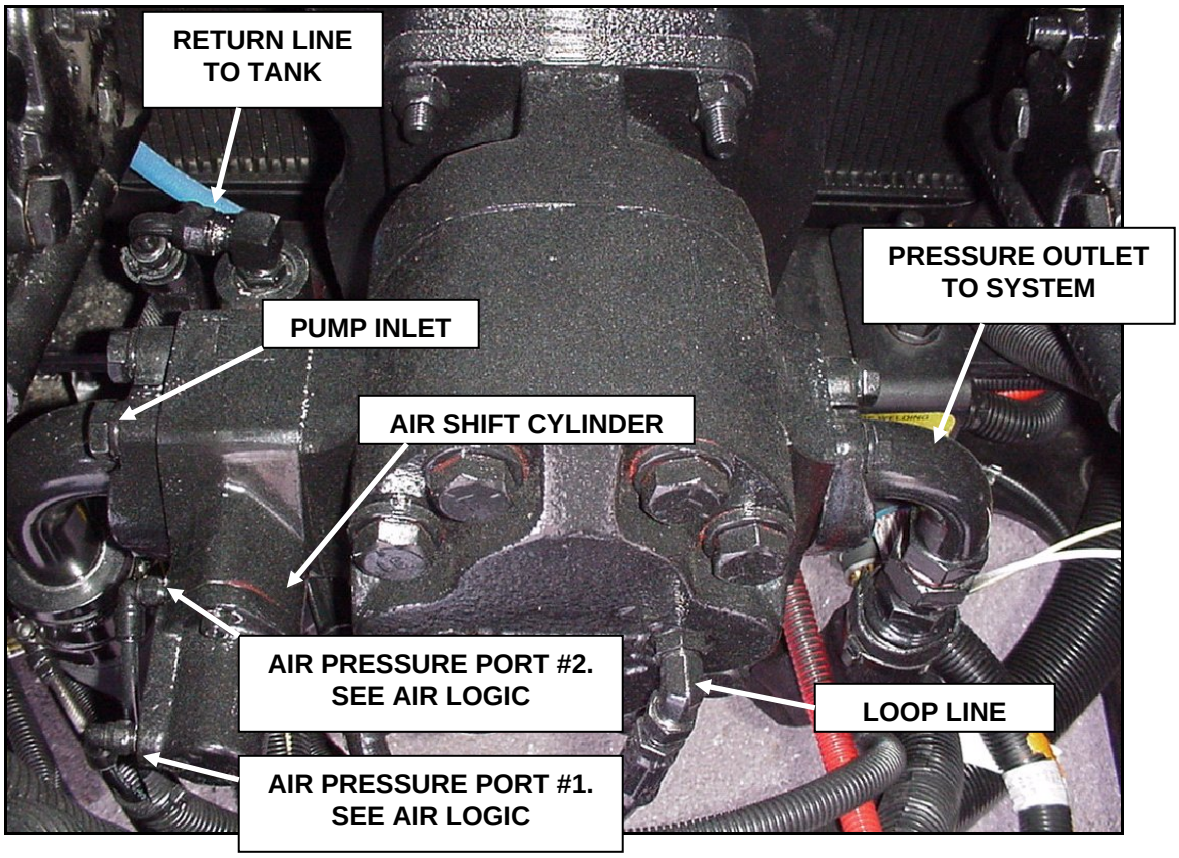
Orifice Part No.	GPM
031-5776-001	55 – 60
031-5776-002	50 – 54
031-5776-003	45 – 49
031-5776-004	40 – 44
031-5776-005	35
031-5776-006	20

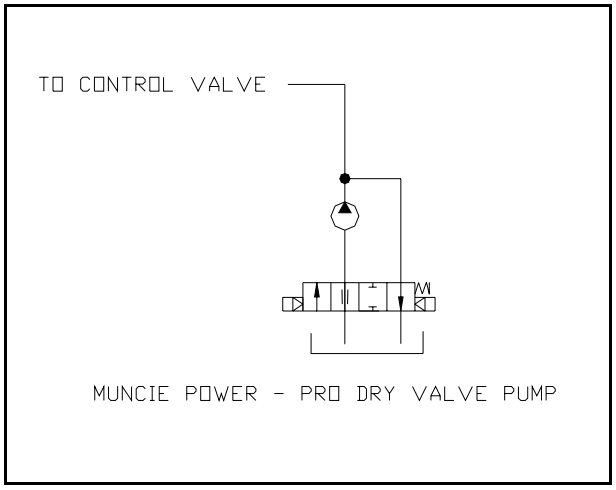


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SINGLE GEAR PUMP WITH POWER PRO DRIVE VALVE (MUNCIE)





This pump set up does not require a constant flow valve in the OFF mode. The power pro dry valve system allows pump cooling and lubrication through the loop line and back to the tank when the system is in the off mode. In the ON mode the loop line is closed to tank and all fluid is sent to system pressure.

AIR LOGIC

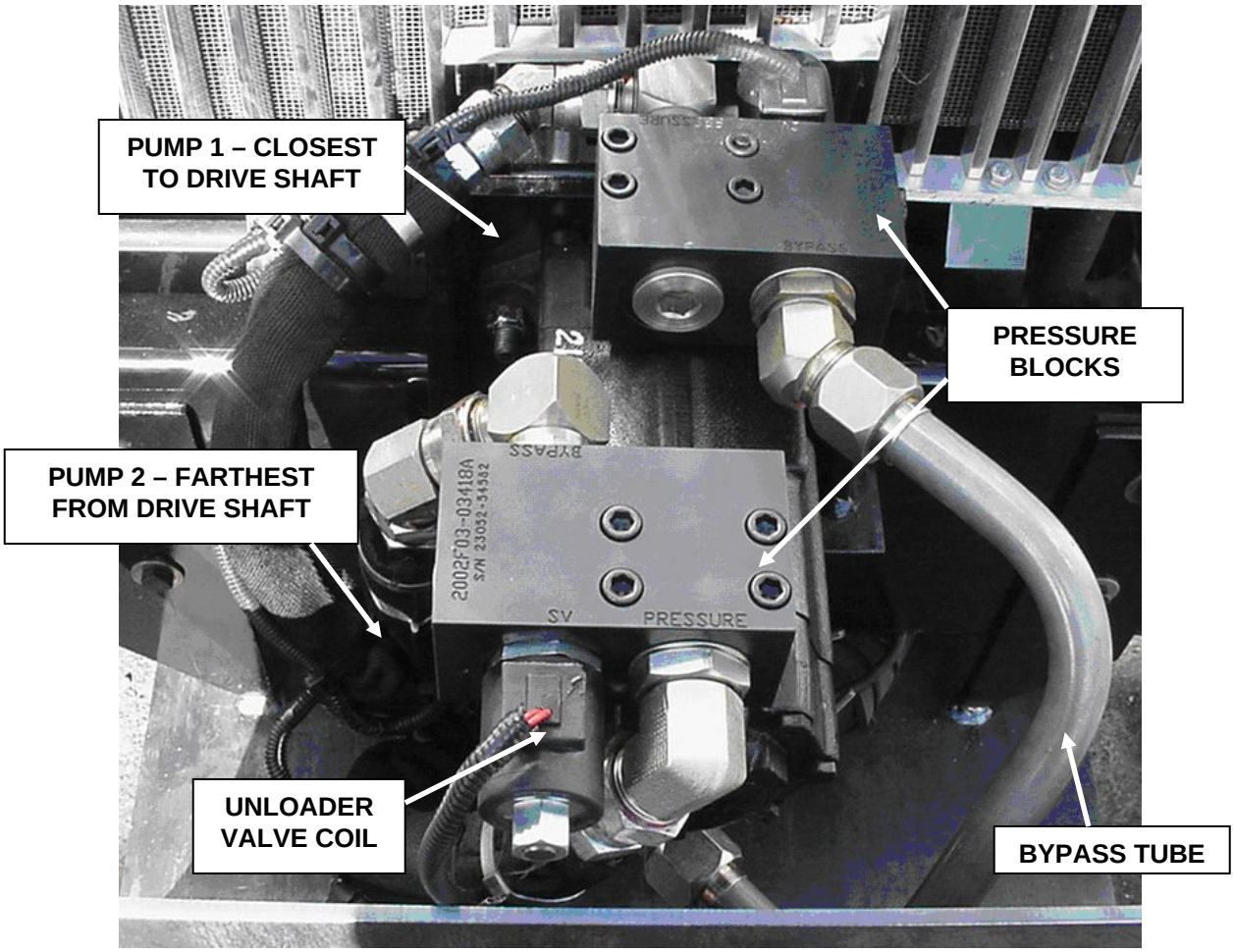
Pump On – Apply air pressure to port #1 and release air pressure from port #2.

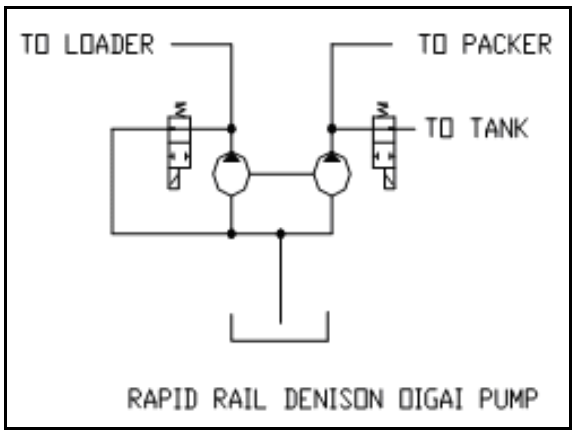
Pump Off – Release air pressure from port #1 and apply air pressure to port #2.

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TANDEM O.I.G.A.I. PUMP – FRONT LOADERS, REAR LOADERS, RECYCLE 2000, CP PYTHONS





This is the Hydraulic Controls Operate-In-Gear-At-Idle (OIGAI) system. The pump section (pump 1) closest to the input shaft operates the lift and shuts off first. The pump section (pump2) farthest from the input shaft operates the packer and stays on at higher RPMs.

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REAR LOADER OAI OPERATION FOR PROGRAM 109-0205

The rear loader Operate-at-Idle (OAI) fast cycle pump system uses a tandem vane pump with a P1 front section (closest to input shaft) and a P2 back section (farthest from input shaft). The PLC program, electrical wiring, electronic pressure switch adjustment, and hydraulic plumbing are all critical and must be exact for this system to function properly.

PowerTrak Commercial and PowerTrak 1000 - P1 front section uses a 42 GPM cam ring; P2 back section uses a 35 GPM cam ring; Packer cycle time 15-17 seconds.

This hydraulic system produces the most flow and has the fastest cycle times at engine idle speed. The system is designed to operate all hydraulic functions at idle. The throttle advance switches on the body do not cause the engine RPMs to increase but calls for more flow by turning on P1. This system also allows for pack-on-the-run.

PLC PROGRAM 109-0205

- Uses input 0.04 to monitor the ON / OFF status of the throttle advance switches. This input should be ON when either of the throttle advance switches on the body are activated.
- Uses input 0.05 to monitor the ON / OFF status of the electronic pressure switch. The input should be OFF during low pressure and ON when the hydraulic system reaches the high pressure setting of the electronic pressure switch.
- Uses output 10.01 for P1 (pump closest to input shaft) to turn ON when the body throttle advance switch is activated and to shut OFF when above 1000 RPM or when the high pressure setting of the pressure switch is reached.
- Uses output 10.03 for P2 (pump farthest from input shaft) to turn ON when the pump switch is activated and to shut OFF when above 2000 RPM.

ELECTRONIC PRESSURE SWITCH

This switch is used to prevent the engine from stalling when using the front loader body functions during engine idle. Some engines do not produce enough net torque at idle and will stall while using some of the hydraulics functions.

The pressure switch is used to shut off the P2 (pump farthest from input shaft) just before the engine stalls. This setting (SP1) is generally around 2000 psi but can be customized to accommodate the particular engine characteristics for each individual machine.

The re-engage pressure is set at 1300 psi. This is the pressure that tells the pump to turn ON again. For example, if the pump shuts OFF at 2000 psi and turns back ON at 1300 psi, the re-engage setting is 700 psi. A re-engage setting that is too low may cause hydraulic system chatter.

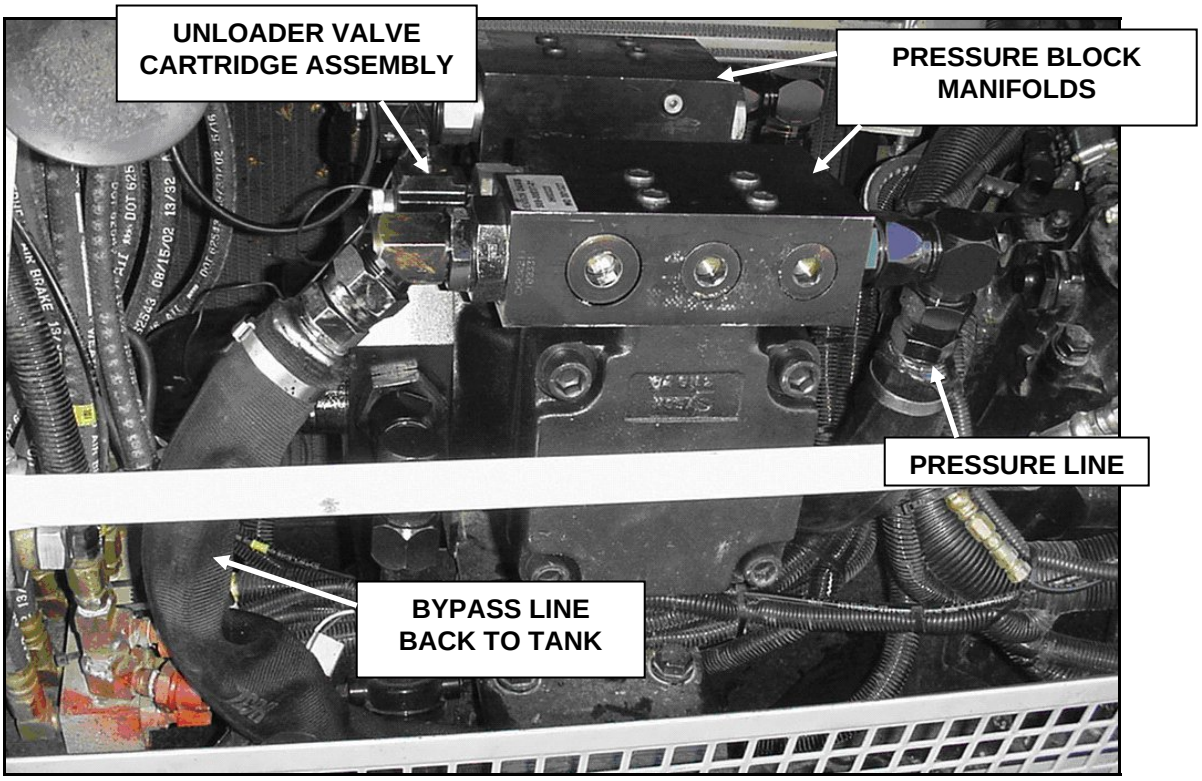
The electronic pressure switch must be plumbed into the main pressure circuit at the hydraulic pump pressure block to work properly. Shut OFF the smaller P2 at idle to prevent engine stall. A pressure switch that is plumbed or wired incorrectly can cause hydraulic system chatter.

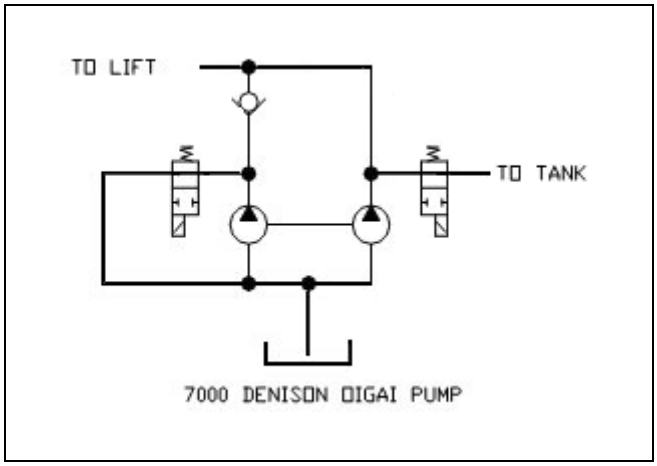
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TANDEM VANE PUMP WITH MONOBLOCK CONTROL MANIFOLDS – NON-O.I.G.A.I. COMBINED FLOW – DP7000 AUTO SIDE LOADER, F4000 O.I.G.A.I., PT1000 O.I.G.A.I.





This pump uses three manifolds to direct the flow of oil away from the pump to the system pressure circuit.

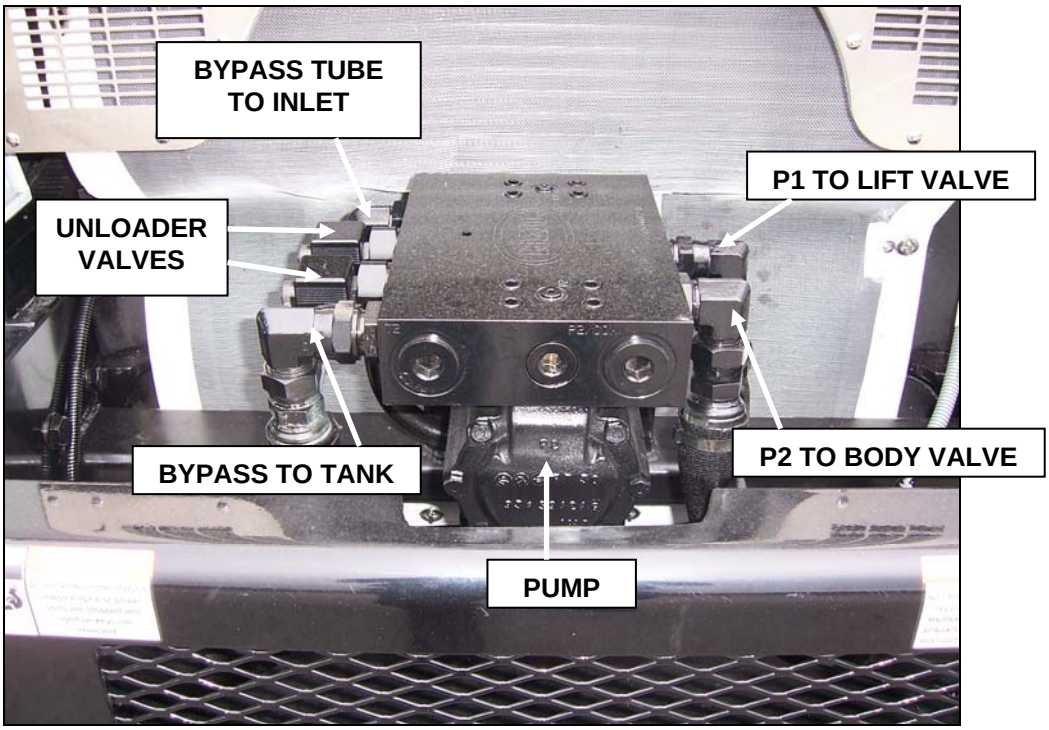
The two pressure block manifolds each contain an unloader valve cartridge and coil assembly to activate the system and an internal one-way check valve for each pump circuit.

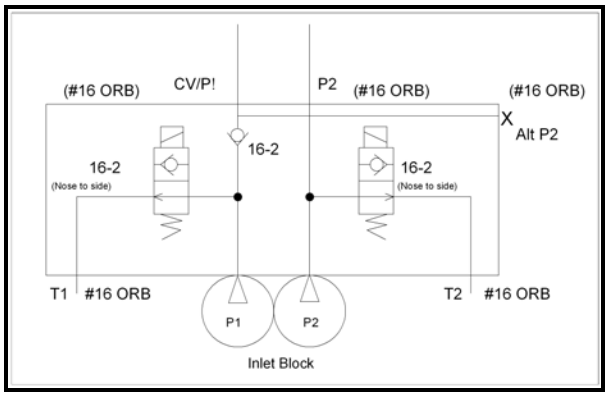
The pump closest to the input shaft shuts OFF first at lower RPMs while the pump farthest from the input shaft stays ON at higher RPMs.

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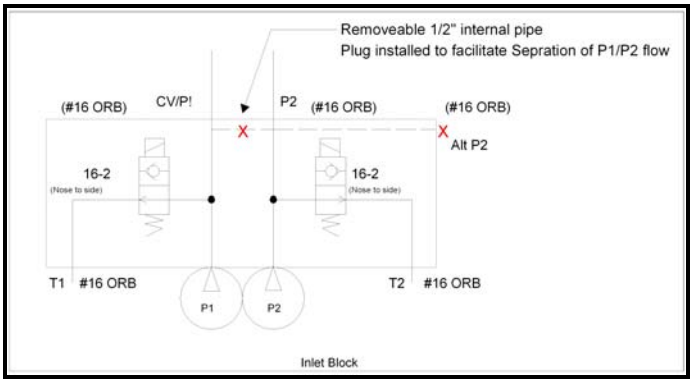
TANDEM VANE PUMP WITH MONOBLOCK SEPARATE OUTLET FLOW – RAPID RAIL AND PYTHON AUTO SIDE LOADER





In the monoblock Operate-in-Gear-at-Idle hydraulic system. The pump section (pump 1) closest to the input shaft operates the lift and shuts OFF first. The pump section (pump 2) farthest from the input operates the packer and stays ON at higher RPMs.

Combined Flow

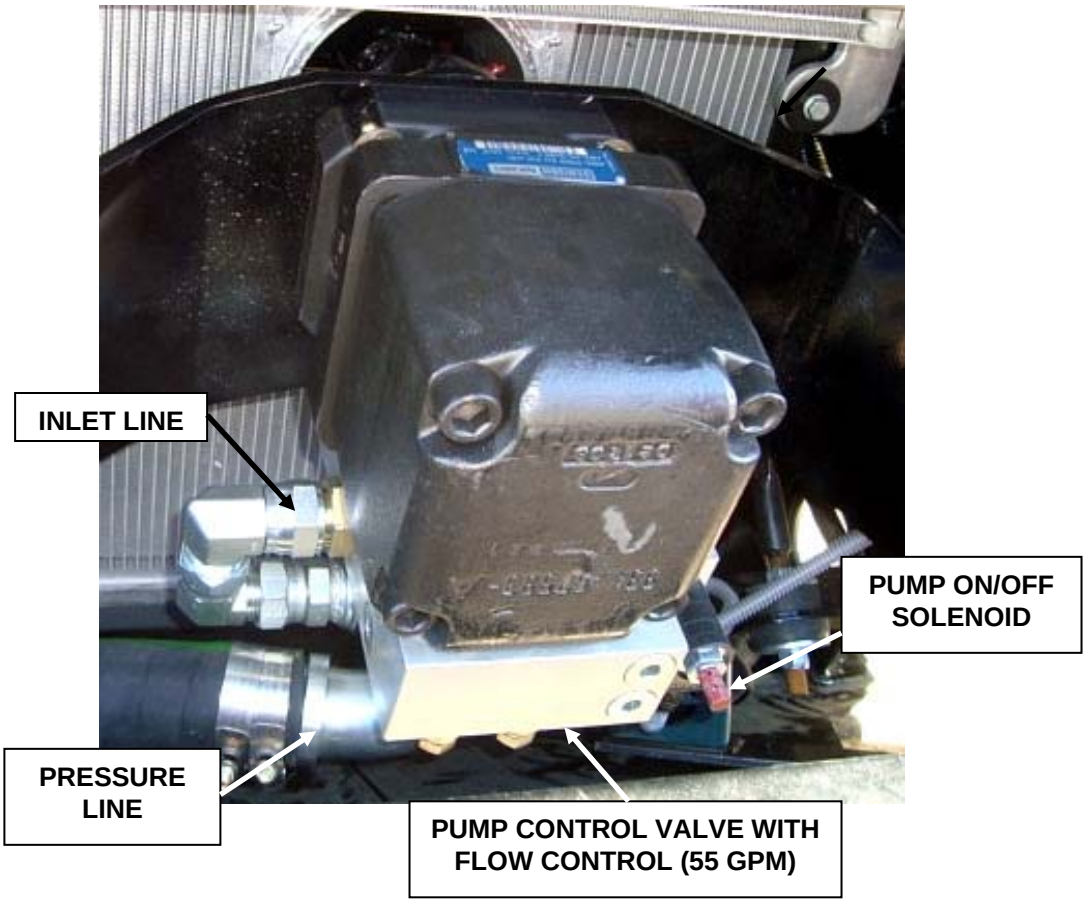


Isolated Flow

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SINGLE VANE PUMP WITH CONTROL MANIFOLD – FRONT END LOADERS AND PRE-2010 DP PYTHONS



The single vane pump control valve is designed to limit the flow to 55 GPM. Excess flow is re-circulated to the inlet.

The pump ON/OFF valve must have power to turn the pump ON.

When the pump solenoid is in the OFF mode, oil is allowed to circulate back to the inlet.

The maximum pump speed is controlled by the PLC.

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SINGLE PUMP REPAIR PROCEDURES

Heil has migrated many products to a high pressure vane pump. Although ratings vary, these pumps are generally rated for higher pressure and higher duty cycles than similar size gear pumps. Because of the design of a vane pump, it is generally not necessary to replace the entire pump. The pump cartridge contains all of the wear items in a vane pump. Replacing the cartridge provides the same performance as replacing the entire pump.

Use the following procedures to field repair and inspect a Heil single vane pump. The procedure was performed on an Autocar chassis and can be used on other chassis. These instructions show complete tear down of the pump assembly. They can be used to replace a failed pump cartridge or failed pump shut-off valve.

Before making adjustments, make sure the unit is in the LOCK-OUT position. LOCK-OUT position is defined as follows:

1. Engine stopped and ignition key removed.
2. Set the brakes and make sure they are holding.
3. Chock all wheels.
4. Insert a LOCK-OUT tag on the steering wheel.



Tools Required

Tools needed to replace the pump include the following:

- 1 1/2 inch open end boxed end wrench
- 3/4 inch open end boxed end wrench
- Wire cutters (Dikes)
- 1/2 inch drive ratchet
- 14mm 1/2 inch drive hex head socket
- 3/8 inch hex head wrench
- 5/32 inch hex head wrench
- Torque wrench capable of producing 150 ft lbs.
- NOTE: Test the cartridge for damage by flow testing the pump before disassembly.

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1. Remove the zip tie from the oil shut-off valve on the hydraulic oil tank. (Figure 1)



Figure 1 Cut zip tie

2. Turn the shut-off valve to the OFF position. (Figure 2).



Figure 2 Turn off shut-off valve

3. Remove the grill from the chassis. (Figure 3)
The number of bolts for the grill varies with chassis brand.



Figure 3 Remove grill

4. Cut the zip tie around the electrical wiring that controls the pump shut-off valve solenoid. (Figure 4)

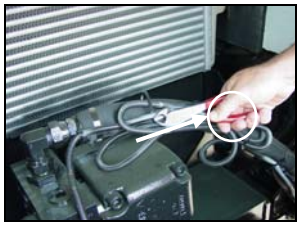


Figure 4 Cut zip tie around wiring

5. Disconnect the electrical wiring—the two-way Packard plug—that controls the pump shut-off valve solenoid. (Figure 5)



Figure 5 Disconnect wiring

6. Remove the one-inch hydraulic pressure hose. (Figure 6)



Figure 6 Remove hydraulic pressure hose

7. Remove the four suction line flange bolts. (Figure 7)



Figure 7 Remove flange bolts

8. Remove the eight bolts connecting the pump shut-off valve to the pump. (Figure 8) There are four small bolts and four large bolts.

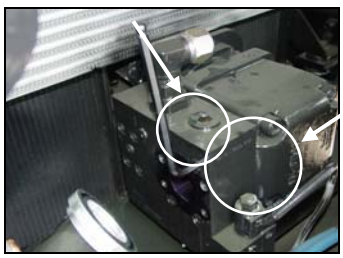


Figure 8 Remove bolts from shut-off valve

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9. Carefully, remove the shut-off valve from the pump. (Figure 9)



Figure 9 Remove shut-off valve

10. Remove the four pump housing connecting bolts. (Figure 10)



Figure 10 Remove housing connecting bolts

11. Carefully remove the pump case housing. (Figure 11)



Figure 11 Remove housing

12. Remove the pump cartridge by pulling it toward you. (Figure 12) The fit may be tight.



Figure 12 Remove pump cartridge

13. Inspect the pump shaft, spines, and bearings for wear and damage. (Figures 13 and 14) Check for the following:
    - Sheared or worn shaft splines.
    - Broken bearing



Figure 13 Inspect parts



Figure 14 Inspect parts

14. Inspect the brass bushing on the pump cartridge for wear and damage. (Figure 15)

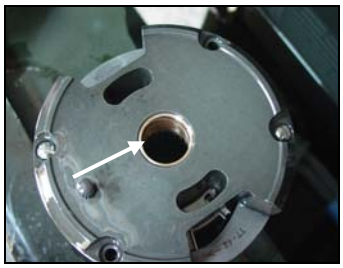


Figure 15 Inspect brass bushing

15. Check the outer housing O-ring for wear or damage such as nicks, fraying, or cuts. (Figure 16) Replace the o-ring if it is damaged.

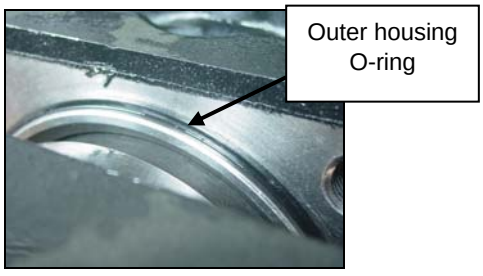


Figure 16 Check O-ring

16. Place the pump cartridge back on the pump shaft. (Figure 17)

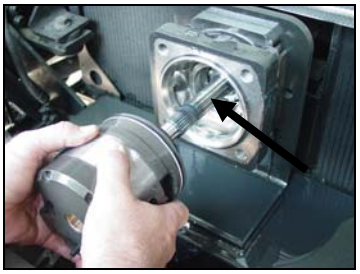


Figure 17 install pump cartridge

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17. Replace the outer pump housing and finger-tighten the four pump housing bolts. (Figure 18)



Figure 18 Replace outer housing and bolts

18. Tighten the four outer housing bolts to 138 ft lbs. (Figure 19)



Figure 19 Torque housing bolts to 138 ft lbs

19. Install the new pump shut-off valve using the new bolts included with the new valve. (Figure 20)



Figure 20 Install new shut-off valve

20. Tighten the eight pump shut-off valve bolts as follows: (Figure 21)
    - Four small back bolts – 60 ft lb
    - Four large front bolts – 92 ft lb



Figure 21 Torque shut-off valves

21. Install the suction line flange to the pump shut-off valve and tighten the four bolts on the flange. (Figure 22)

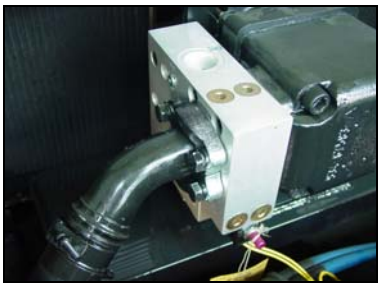


Figure 22 Replace suction line

22. Install one straight connector, 054-3341-10, to the **P Port** on the shut-off valve. (Figure 23)

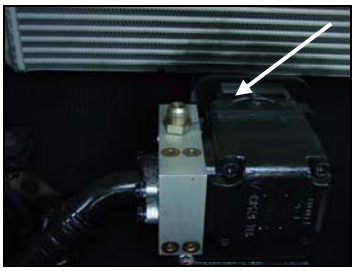


Figure 23 Install straight connector

23. Install one 90 degree elbow, 054-2988-10, on the straight connector. (Figure 24)

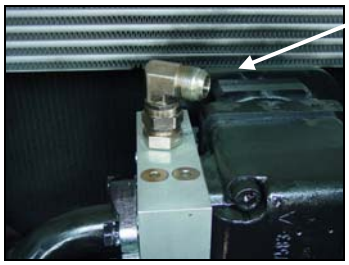


Figure 24 Install 90 degree elbow

24. Connect the one inch hydraulic pressure hose to the 90 degree elbow. (Figure 25)

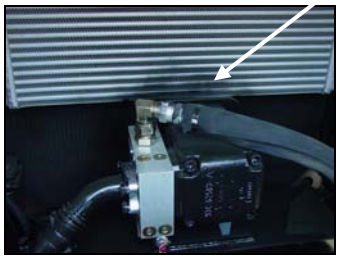


Figure 25 Reconnect hydraulic pressure hose

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25. Install the following two-way Packard connector to the two wires coming from the solenoid on the new shut-off valve: (Figure 26)
    - 1 ea – 108-4827-004 Two-way female connection
    - 2 ea – 108-4827-120Female terminal (18-20AWG)
    - 2 ea – 108-4827-132 Cable seal (16-14 GA)

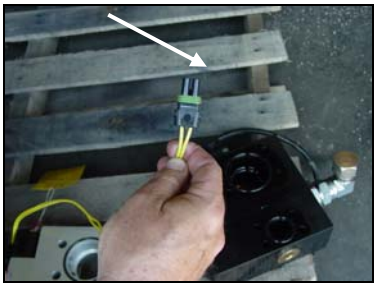


Figure 26 Install two-way Packard connector

26. Connect the new Packard connector to the original, matching Packard connector. Secure the excess wiring harness for the solenoid to the hydraulic pressure line with a zip tie. (Figure 27)



Figure 27 Connect plugs and secure excess wiring

27. Attach the grill to the chassis. (Figure 28)



Figure 28 Reattach grill

28. On the hydraulic oil pump, move the shut-off valve to the OPEN position and secure the valve with a zip tie. (Figure 29 and 30)



Figure 29 Open valve



Figure 30 Secure valve

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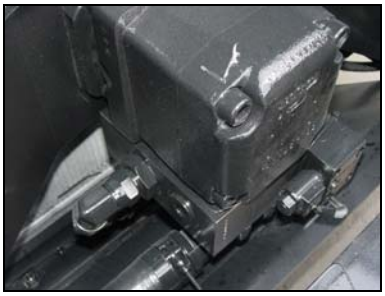
The following pictures show the 219-2303 pump configuration installed on a another chassis.











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TROUBLESHOOT PUMP 219-2303 WITH 031-6427

In 2007, Heil changed the pump control valve to a design that easily allows testing the pump and the pump control valve functions on the vehicle.

1. Hydraulic functions do not operate.
    - When pump should be on, verify there is at least 10 volts at the pump coil.
    - If 10 or more volts are present proceed to step 2.
    - If not, determine if the PLC program (if so equipped) is at fault or a wire is broken.
2. When pump should be on, pull red knurled knob on the end of the solenoid valve. (Figure 1)
    - Does the system work now?
    - If so replace the coil
    - If not proceed to step 3

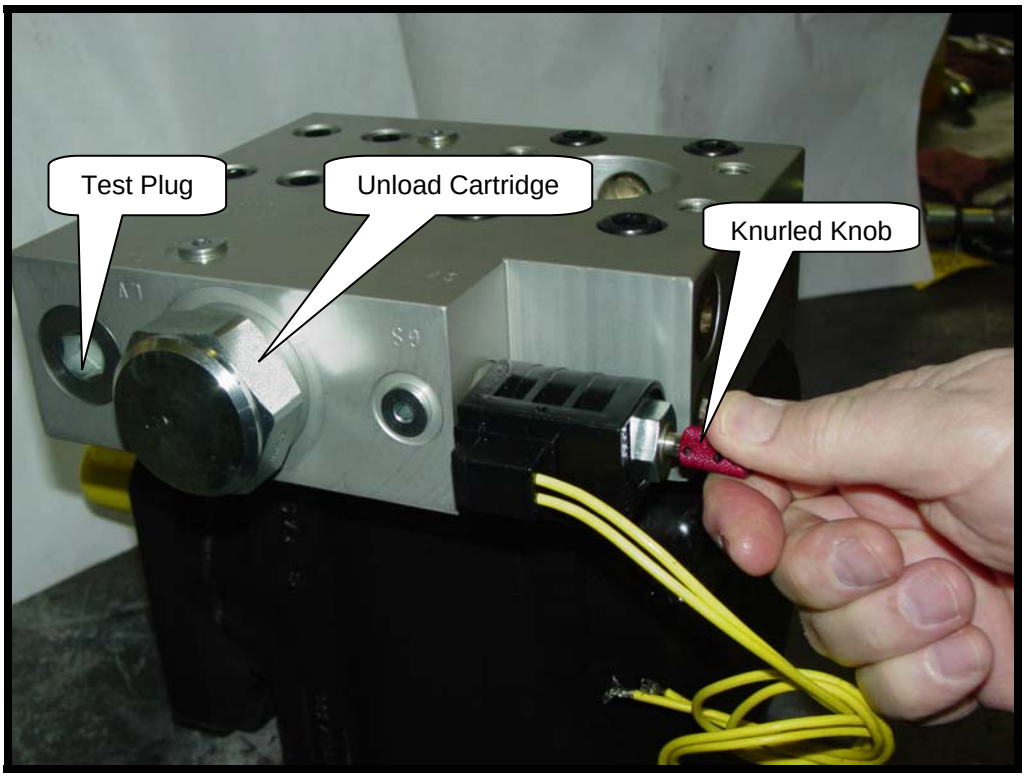


Figure 1

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3. Remove the unloading cartridge. (Figure 2) Temporarily set aside in a clean location.



Figure 2

4. Remove test plug located in the side of the pump control valve. (Figure 1)
5. Insert pug in the port where the unload cartridge was removed. There is a thread for it at the bottom of the cavity. (Figure 3)

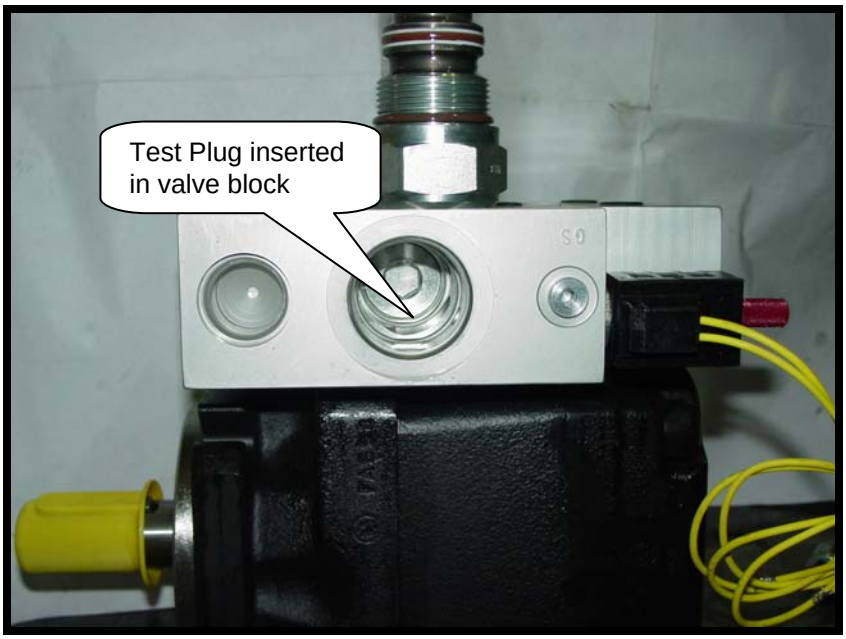


Figure 3

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6. Reinsert the unload cartridge. (Figure 4)

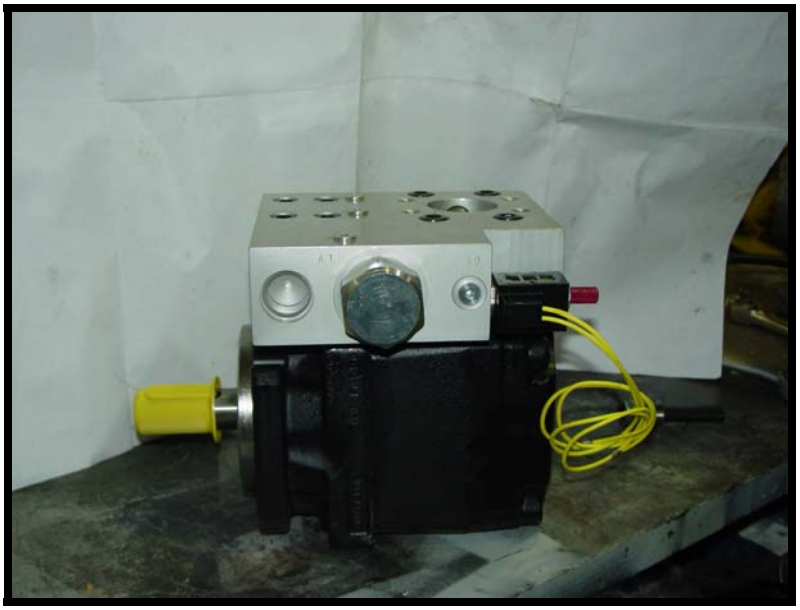


Figure 4

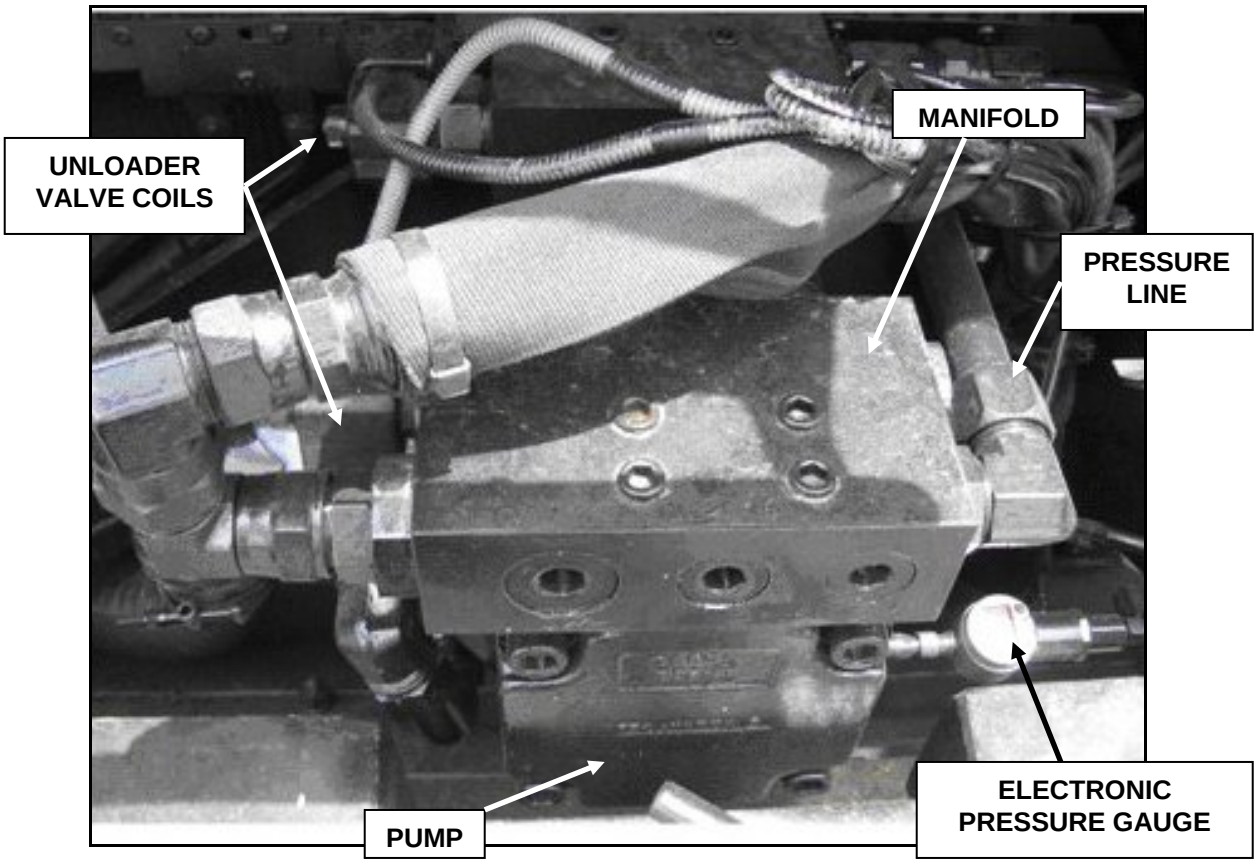
7. Start the truck and test all functions.
   - If the system now works correctly the problem is in the pump control valve.
   - If the system still does not function correctly the pump cartridge need to be replaced.
8. Remove the unload cartridge. Temporarily set aside in a clean location.
9. Remove the test plug and replace it in the side of the pump control valve.
10. Reinstall the unload cartridge.

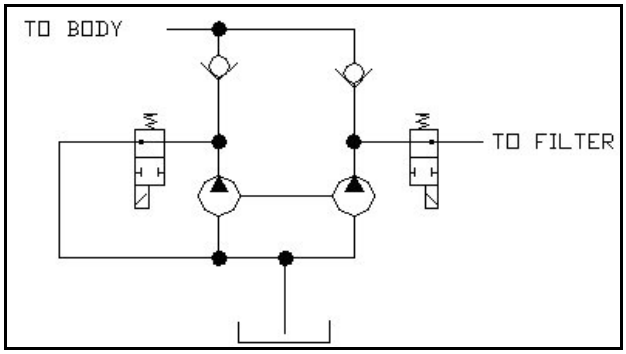
WARNING: Always remove the test plug before running the truck on routes to prevent hydraulic system failure.

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TANDEM VANE PUMP FRONT LOADER O.A.I. OPERATION – PROGRAM 109-0229





The tandem pump with the pressure manifolds combines the flow of oil from both pumping sections to get normal cycle times for the packer and body functions at engine idle.

The pumping section closest to the pump input shaft (P1) shuts OFF first during higher RPMs. The pumping section farthest from the pump input shaft (P2) stays ON longer during higher engine RPMs. The packer cycle time for units using this pump is fastest during engine idle up to 1050 RPM.

The separate pressure block manifolds contain two unloader valve and coil assemblies used to activate each respective pumping section and control the flow of oil directed to the hydraulic system.

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FRONT LOADER O.A.I. PUMP OPERATION FOR PROGRAM 109-0229

The front loader Operate-at-Idle (OAI) pump system uses a tandem vane pump with a large ring in the P1 front section (closest to input shaft) and a smaller P2 back section (farthest from input shaft). The PLC program, electronic pressure switch, electrical wiring, and hydraulic plumbing are all critical and must be exact for this system to function properly.

This hydraulic system produces the most flow and has the fastest cycle times at idle up to 1050 RPM. The system is designed to operate all hydraulic functions at idle.

PLC PROGRAM 109-0229

- Uses input 01.02 to monitor the ON / OFF status of the electronic pressure switch. The input should be ON during low pressure and shut OFF when the hydraulic system reaches the high pressure setting on the electronic pressure switch.
- Uses output 10.05 for PI (50 GPM pump closest to input shaft) to shut OFF at 1050 RPM.
- Uses output 11.06 for P2 (38 GPM pump farthest from input shaft) to shut OFF at 2100 RPM or when the high pressure setting of the pressure switch is reached.

ELECTRONIC PRESSURE SWITCH

This switch is used to prevent the engine from stalling when using the front loader body functions during engine idle. Some engines do not produce enough net torque at idle and will stall while using some of the hydraulics functions.

The pressure switch is used to shut off the P2 (pump farthest from input shaft) just before the engine stalls. This setting (SP1) is generally around 2000 psi but can be customized to accommodate the particular engine characteristics for each individual machine.

The re-engage pressure is set at 1300 psi. This is the pressure that tells the pump to turn ON again. For example, if the pump shuts OFF at 2000 psi and turns back ON at 1300 psi, the re-engage setting is 700 psi. A re-engage setting that is too low may cause hydraulic system chatter.

The electronic pressure switch must be plumbed into the main pressure circuit at the hydraulic pump pressure block to work properly. Shut OFF the smaller P2 at idle to prevent engine stall. A pressure switch that is plumbed or wired incorrectly can cause hydraulic system chatter.

NOTE: This document covers 109-0229 as of August 1, 2007.

ISSUED DECEMBER 2010

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TANDEM VANE PUMP O.I.G.A.I. HYDRAULIC SYSTEM TROUBLESHOOTING

The Operate-in-Gear-at-Idle (OIGAI) system is designed to perform the side loading operations at standard idle speed. It is comprised of two major components, the monoblock tandem vane pump and attached unloader valve assembly.

On Rapid Rail systems the P1 or front section (closest to the pump input shaft) operates the loader section of the truck while the P2 or rear section (farthest from the input shaft) operates the body section, which includes the packer. On F7000 series units the flows from both pump sections are combined to run the lift (loader) then exit the lift valve to operate the body valve. On the Python, P1 goes to the lift and P2 combines after the lift valve to run the body.

The unloader valve assemblies consist of a manifold (pressure) block, a normally open (N.O. or NO) cartridge valve and a 12VDC-solenoid coil. In operation mode, the current is supplied to the valve coil causing the valve to CLOSE, forcing pump flow to the respective hydraulic circuit. In bypass mode, the coil is de-energized causing the valve to OPEN, allowing the oil to re-circulate either back to tank or to the pump inlet.

TROUBLESHOOTING

The symptoms of a problem in the pump circuit are no operation or slow operation of the loader or packer system. Since the F7000 series uses combined flows, a possible symptom of system malfunction is the packer operating at half the normal speed. On a Rapid Rail body with a Rapid Rail lift, each pump section controls one aspect of the system independent of the other. A malfunction of one pump's section will normally only affect one function of the truck. For example the packer will work correctly but not the loader or vice versa.

There are three primary causes for the pump circuit not to operate properly:

1. Low or no voltage to the unloader valve coil.
2. Malfunction in the unloader valve assembly.
3. Internal problem with the pump.

Perform the following test after finding that there is insufficient or no flow to the loader and/or body valves.

Check the Electrical Supply to the Unloader Valve Coils

With the system turned ON and the engine operating at idle, test the voltage at the coil. It should read a minimum of 10 VDC. If proper voltage is present and the problem persists, proceed to step 2. If the voltage is below 10 VDC, check the electrical system for problems that can cause a drop or loss of voltage to the unloader valve solenoid coil. Some examples are a broken or shorted wire, blown fuse, fault in the side door switch (if equipped), no alternator input or a failed PLC calibration.

Use an ohm meter to check resistance in the coil. If the measurement is less than 5 ohms or more than 20 then the circuit coil is damaged. If the coil is damaged, replace the coil.

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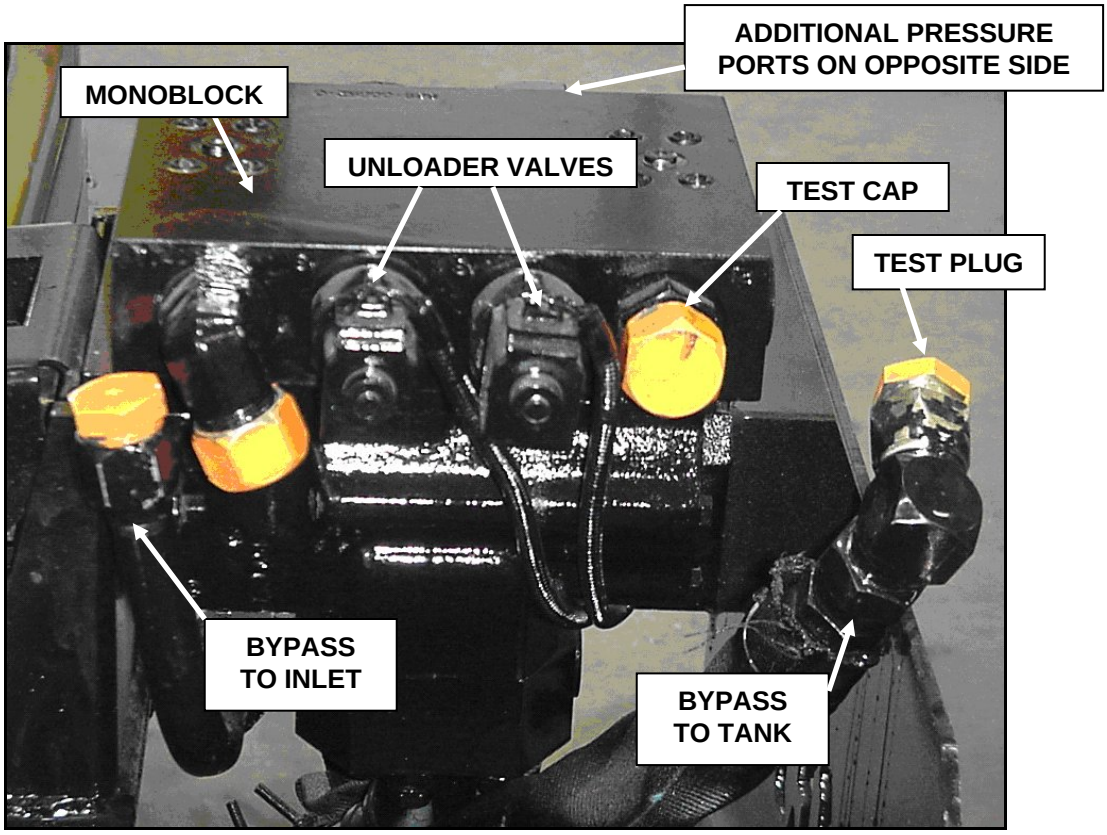
All Units

Eliminate the Unloader Valve from the Circuit

With the engine OFF, remove the bypass line from the pressure block port marked *bypass* . Disconnect the pressure hose or hoses sending oil to the lift and body functions. On the Rapid Rail and Pythons, there are two pressure hoses to be capped; on the F7000 and F4000 there is one hose to be capped. Cap and plug the tube connection for the bypass to the pump inlet. This forces all oil to the hydraulic circuits as if the pump is on. (NOTE: Pump control switches in the cab are no longer effective.)

Restart the truck and test the functions. If the lift and packer functions return to normal operation (speed and pressure within specifications), replace or repair the unloader assembly.

NOTE: If flow is present and the lift or packer operate only with no load, check the main relief valves for proper adjustment and operation.



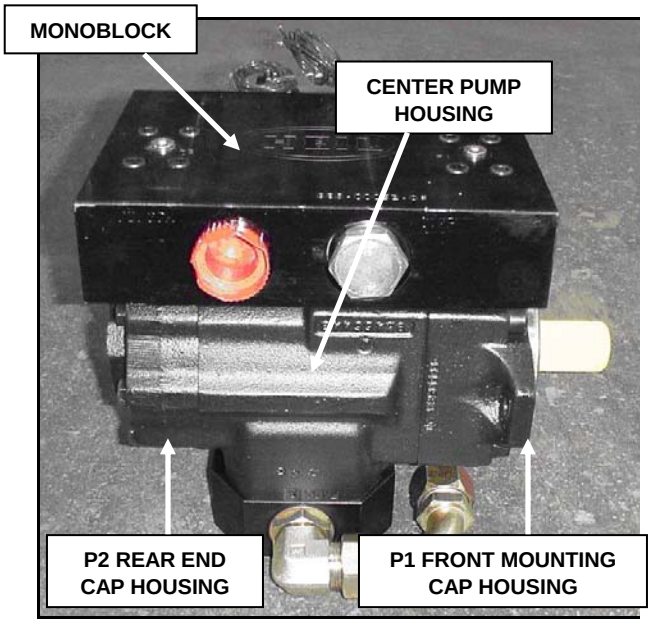
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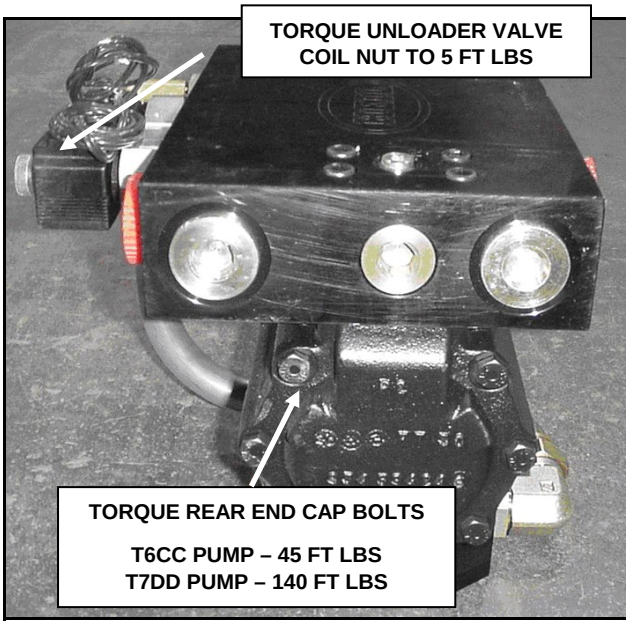
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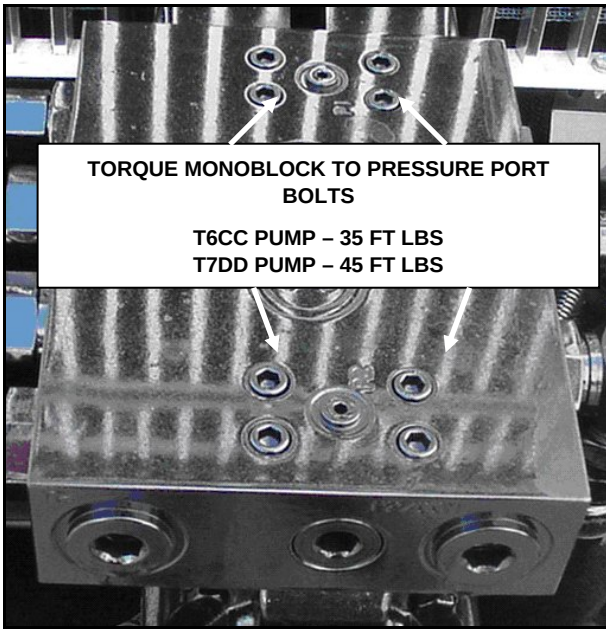
MOUNT PUMP MONOBLOCK TO TANDEM PUMP

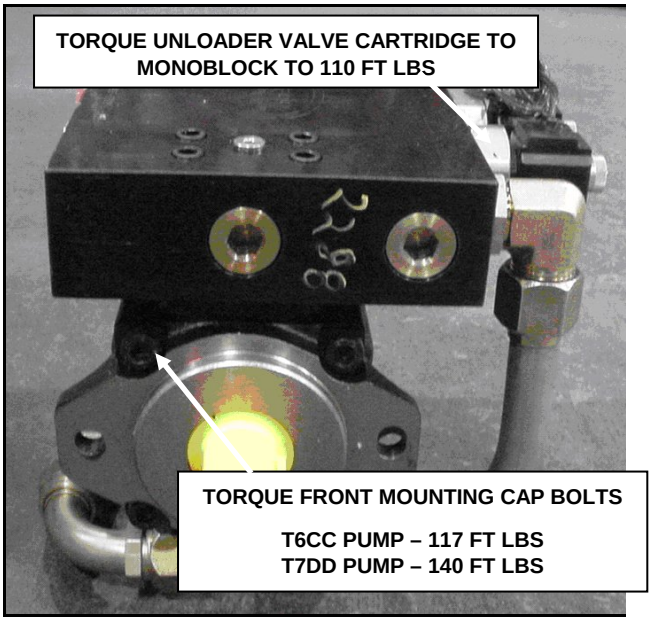
Follow these steps when mounting a monoblock to the tandem pump.

1. Loosen the rear end cap bolts and front mounting cap bolts to allow slight movement between the P1, center pump, and P2 housings. This aligns the P1 and P2 pressure ports with the monoblock.
2. Mount the monoblock using the eight (8) cap screws with hi-collar lock washers and torque the cap screws. **NOTE: Make sure the o-rings stay in place.**
3. Re-torque the bolts on the rear end cap and front mounting cap housings of the pump.
4. If either the unloader valve cartridge or the pilot valve cartridge (that screw into the unloader valve cartridge) is removed, it needs to be re-torqued. Re-torque the unloader cartridge to 110 ft. lbs. and the pilot cartridge (not shown) to 15 ft. lbs.





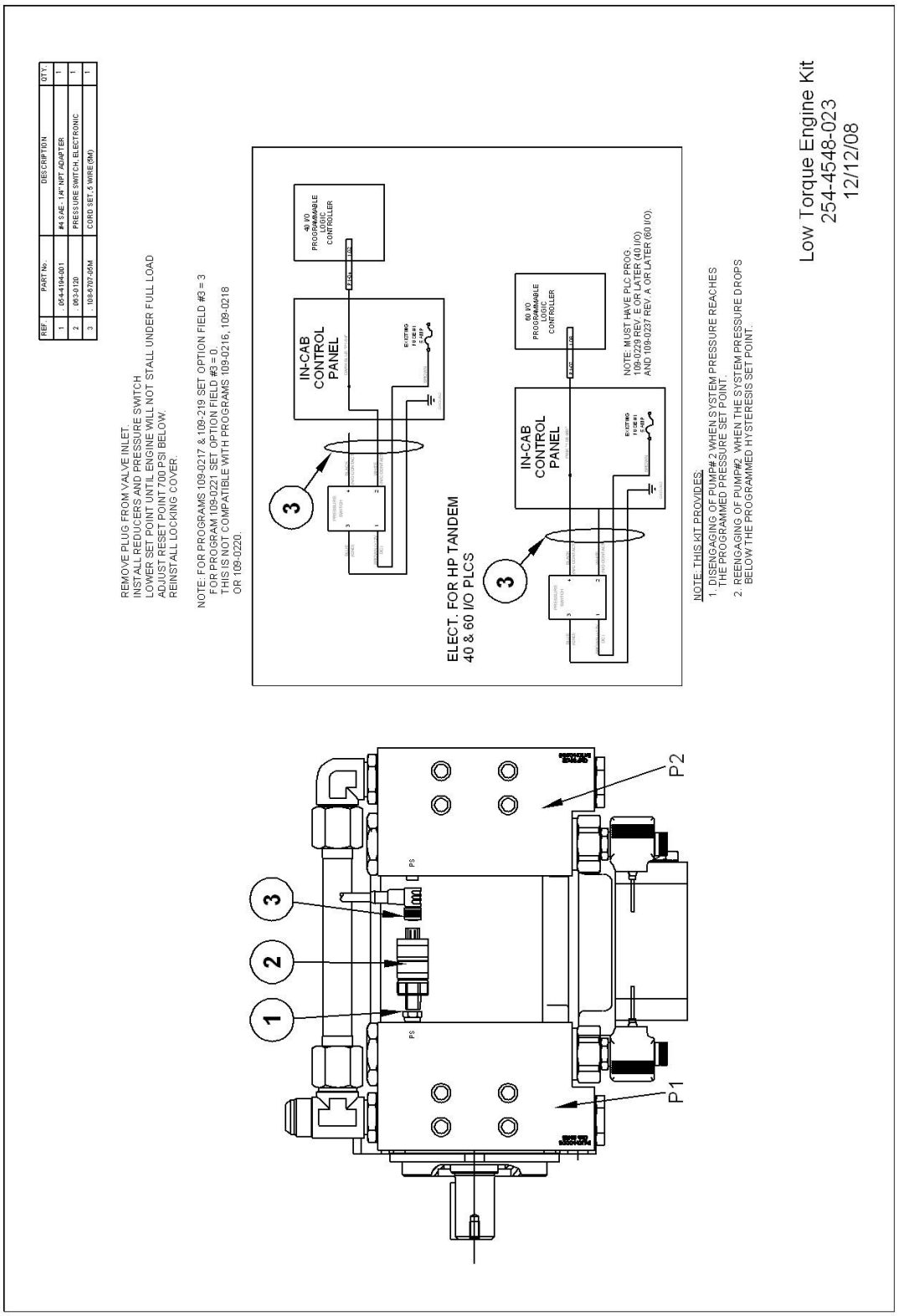




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PRESSURE SWITCH KIT – LOW TORQUE ENGINES



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SECTION 4-6 CONTROLS, BODY & TAILGATE

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Please refer to the legacy information at the beginning of this Service Manual.

This information will be updated and moved from the Legacy information into the applicable Service Manual 4, 5 or 6 during 2012.

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SERVICE MANUAL

SECTION 7
LIGHTS AND LAMPS

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Lights 704

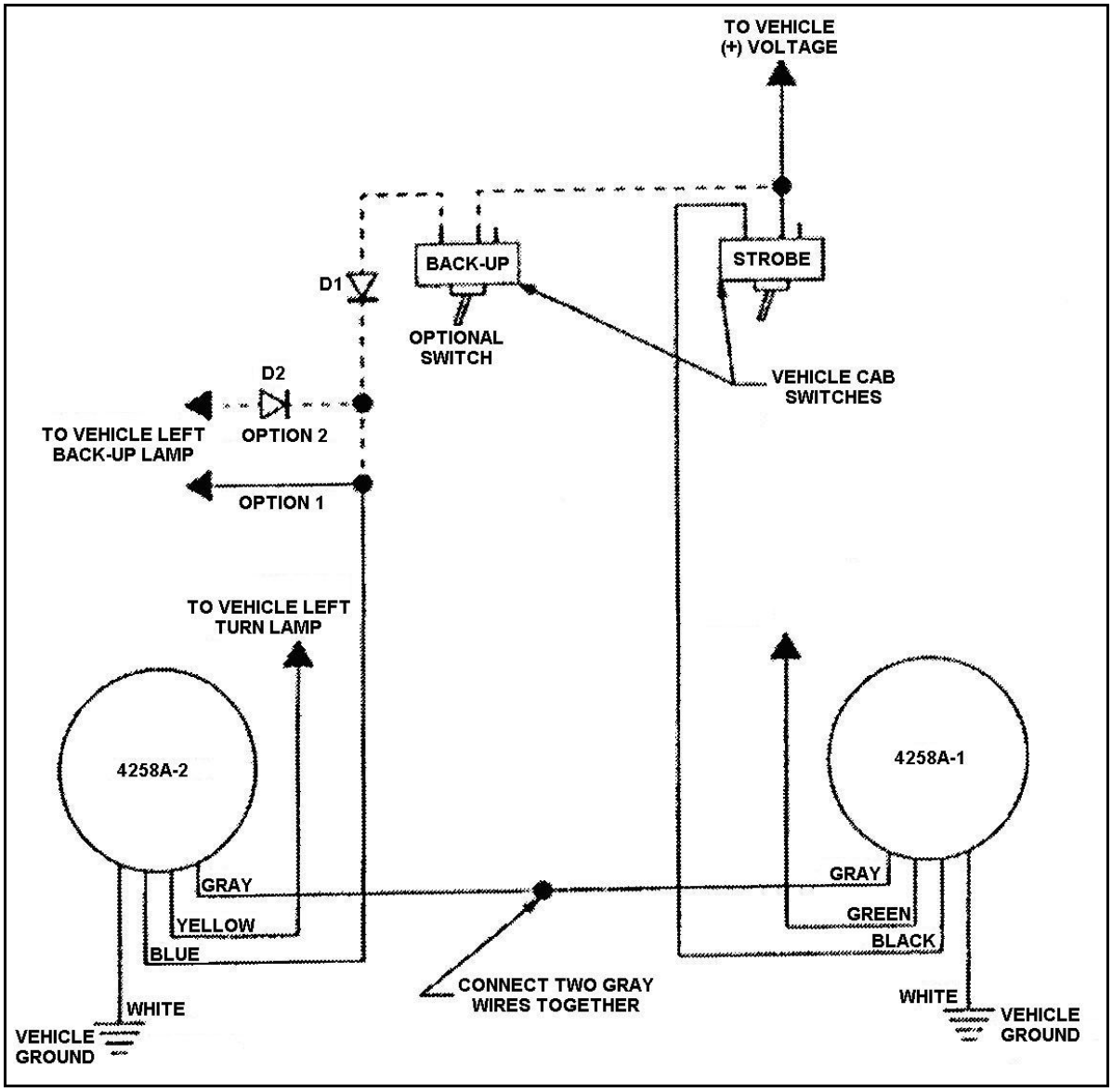
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SMART LAMP LIGHT SYSTEMS

Heil uses two different lighting systems. Both systems use LED lights that function as strobe lights and turn signals. The strobe function is manually activated with a switch in the cab or configured to strobe automatically when the vehicle is shifted into reverse. Activating a turn signal automatically overrides the strobe function so that the strobe light functions as a turn signal.

The two-light system contains one master light and one slave light. Both lights have a different part number and cannot be replaced or mixed with a different brand light. Some vehicles use two of the two-light systems combined for a total of four rear lights. When used in this combination, there are four strobe lights total but only two lights are synchronized.

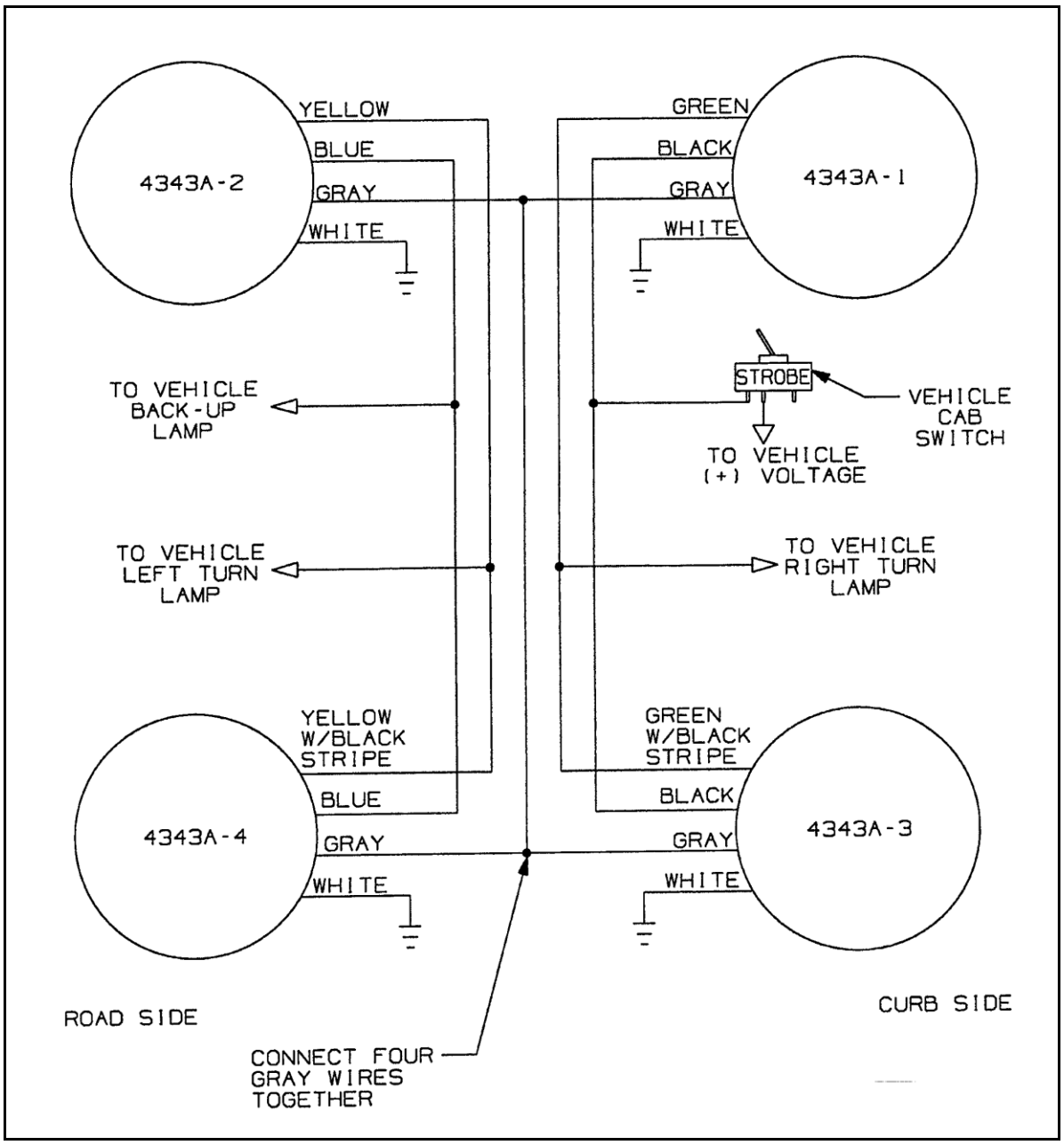


TWO-LIGHT SYSTEM

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The four-light system contains one master light and three slave lights. Each light has a different part number and cannot be replaced by another brand or mixed with a different brand light. This system provides for a total of four strobe lights that are synchronized to strobe in the same sequence.



FOUR-LIGHT SYSTEM

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LIGHTS

PART NO.	DESCRIPTION	REQ'D
113-1206	LIGHT, LED, STT, Red	REF
115-0608	LIGHT, License (No Breakdown)	REF
115-0642	LIGHT, Flood (Includes Hardware)	REF
115-0742	LIGHT, STT	REF
115-0742-001	GROMMET, Light, Rd., 4"	1
115-0742-002	GROMMET, Mount	1
115-0742-003	PIGTAIL	1
115-0743	LIGHT, Back-Up	REF
115-0743-001	LIGHT	1
115-0743-002	GROMMET	1
115-0743-003	PIGTAIL	1
115-0747	LIGHT, Halogen, Quartz	REF
115-0757	REFLECTOR, Red, 3-1/4" Dia.	REF
115-0758	REFLECTOR, Amber, 3-1/4" Dia.	REF
115-0760	LIGHT, Clearance, Shock Mounted, Red	REF
115-0760-001	LIGHT	1
115-0760-002	GROMMET	1
115-0760-003	PIGTAIL	1
115-0761	LIGHT, Side Mounted	REF
115-0761-001	LIGHT	1
115-0760-002	GROMMET	1
115-0760-003	PIGTAIL	1
115-0782	LIGHT, Turn, Mid-Body	REF
115-0782-001	LIGHT	1
115-0782-002	GROMMET	1
115-0869-002	PIGTAIL	1
115-0868	LIGHT, Beacon, Rotation	REF
115-0869	LIGHT, Directional, Red	REF
115-0869-001	LIGHT	1
115-0886	LIGHT, Green	REF
115-0766-001	BASE	1
115-0766-002	BULB	1
115-0886-003	LENS, Green	1
115-0905	REFLECTOR, Red	REF
115-0912	LIGHT, STT, 7"	REF
115-0916	LIGHT, Trapezoidal Beam	REF
115-0925	LIGHT, Marker, 2"	REF
115-0933	LIGHT, Strobe, Whelen, 1" NPT-3/4"	REF
115-0937	LIGHT, Turn, Amber, 4" Dia.	REF
115-1255-001	FLASHER, 3 Terminal, 25 Amp., 60-120 Flash	REF
115-1031	LIGHT, Flood, Halogen	REF

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PART NO.	DESCRIPTION	REQ'D
115-1035	LAMP, LED, STT, w/Adapter Plug, Red, 4"	REF
115-1035-001	LED, STT, Red	1
115-1035-002	PLUG, Adapter	1
115-0742-002	GROMMET, Mount	1
115-1180	LIGHT, LED, Strobe, Oval, Amber	REF
115-1180-001	LAMP	1
115-1179-002	PLUG	1
115-0869-003	GROMMET	1
115-1219	LIGHT, LED, Reverse	REF
115-1219-001	LIGHT, LED, Reverse	1
115-0742-001	GROMMET, Light, Rd., 4"	1
115-1224	ASSEMBLY, Light, Trapezoidal w/Connector	REF
115-0918	LIGHT, Trapezoidal Beam	1
108-6461-012	RECEPTACLE, Str., 3-Way, Deutsch DT Series	1
108-7336-002	LOOM, Un-Split, 3/8" Dia. x 9/16" OD	1'
115-1226	ASSEMBLY, Work Light, w/Connector	REF
115-1225	LIGHT, Work	1
108-6461-012	RECEPTACLE, Str., 3-Way, Deutsch DT Series	1
108-7336-002	LOOM, Un-Split, 3/8" Dia. x 9/16" OD	1'
115-1229	ASSEMBLY, Light, LED, Stop, Oval, Red	REF
115-1229-001	LIGHT, LED, Stop, Oval, Red	1
115-0869-002	GROMMET, Mount	1
115-1230	LIGHT, LED, Clearance, Red, 2-1/2"	REF
115-1045-001	LIGHT, LED, Clearance, Red, 2-1/2"	1
115-0720-002	GROMMET, Mtg.	1
115-1231	ASSEMBLY, Light, LED, Clearance, Amber, 2-1/2"	REF
115-1046-001	LIGHT, LED, Amber, 2-1/2"	1
115-0760-002	GROMMET, Mtg.	1
115-1232	KIT, Strobe Light, w/Brush Guard	REF
115-1232-001	LIGHT, Strobe	1
115-1232-002	GUARD, Brush, Strobe Light	1
115-1245-001	LIGHT, Amber, Rd., 7"	REF
115-1245-002	LIGHT, LED, Red, 7"	REF
115-1246	LIGHT, LED	REF
115-1246-001	LIGHT, LED, STT, Red, 4"	1
115-1246-002	GROMMET, Rd., 4"	1
115-1247	LIGHT, LED, Flasher	REF
115-1247-001	LIGHT, LED, Flasher, Amber, 4"	1
115-1246-002	GROMMET, Rd., 4"	1
115-1248	LED, STT, Oval, Red	REF
115-1248-001	LIGHT, LED, STT, Oval, Red, 6"	1
115-1248-002	GROMMET, Oval, 6"	1

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PART NO.	DESCRIPTION	REQ'D
115-1249	LED, STT, Oval, Amber	REF
115-1249-001	LIGHT, LED, Turn, Oval, Amber, 6"	1
115-1248-002	GROMMET, Oval, 6"	1
115-1256-001	INDICATOR, LED, Red, 16 mm	REF
115-1256-002	INDICATOR, LED, Green, 16 mm	REF
115-1256-003	INDICATOR, LED, Yellow, 16 mm	REF
115-1269-001	ASSEMBLY, Light, LED, Smart Lamp, Right Turn, Amber, Rd., 4"	REF
115-1269-RGT	LIGHT, LED, Smart Lamp, Right Turn, Amber, 4"	1
115-0742-002	GROMMET, Mount	1
115-1269-002	ASSEMBLY, Light, LED, Smart Lamp, Left Turn, Amber, Rd., 4"	REF
115-1269-LFT	LIGHT, LED, Smart Lamp, Left Turn, Amber, 4"	1
115-0742-002	GROMMET, Mount	1
115-1271	LAMP, LED, License, w/Connector	REF
115-1271-001	LAMP, LED, License	1
115-1271-002	BRACKET, License Plate Light, LED	1
115-1272	LIGHT, LED, Strobe, Oval, Amber	REF
115-1272-001	LAMP	1
115-1179-002	PLUG	1
115-0869-002	GROMMET	1
115-1278	LIGHT, Strobe, Clear	REF
115-1232-002	GUARD, Brush, Strobe Light	1
115-1278-001	LIGHT, Strobe, Clear	1
115-1360	ASSEMBLY, LED, STT, Red, Rd., 4"	REF
115-0742-002	GROMMET, Mount	1
115-1360-001	LIGHT, LED, STT, Red, 4"	1
115-1361	LAMP, LED, Reverse, 4"	REF
115-0742-002	GROMMET, Mount	1
115-1361-001	LIGHT, LED, Reverse	1
115-1362	ASSEMBLY, Light, LED, Clearance, Red, 2-1/2"	REF
115-0760-002	GROMMET, Mount	1
115-1362-001	LIGHT, LED, Clearance, Red, 2-1/2"	1
115-1363	ASSEMBLY, Light, LED, Mid-Turn Tail, Oval, Amber	REF
115-0869-002	GROMMET, Oval	1
115-1363-001	LIGHT, LED, Mid-Turn Tail, Oval, Amber	1
115-1364	ASSEMBLY, Light, LED, Stop, Oval, Red	REF
115-0869-002	GROMMET, Oval	1
115-1364-001	LIGHT, LED, Stop, Oval, Red	1
115-1373	ASSEMBLY, Light, LED, Clearance, Amber, 2-1/2"	REF
115-0760-002	GROMMET, Mount	1
115-1373-001	LIGHT, LED, Clearance, Amber, 2-1/2"	1
115-1376	LIGHT, LED, Clearance, Red, 2"	REF
115-0945-002	LIGHT, Clearance, Red, 2"	1

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PART NO.	DESCRIPTION	REQ'D
115-1388	LIGHT, LED, Stop, Red	REF
115-1389-001	LIGHT, LED, Strobe, Oval, Amber	REF
115-1389-003	LAMP	1
115-1389-002	GROMMET	1
115-1391	LIGHT, Strobe, Mini-Bar, Amber	REF
115-1395	ASSEMBLY, Light, Mid-Body Turn, Oval, Amber	REF
115-1395-001	LIGHT, LED, Mid-Body, Turn	1
115-0742-002	GROMMET, Mount	1
115-1400	LIGHT, LED, Flood	REF
115-1402	ASSEMBLY, Light, LED, Clearance, Red	REF
115-0760-002	GROMMET, Mount	1
115-1402-001	LIGHT, LED, Clearance, Red	1
115-1403	ASSEMBLY, Light, LED, Clearance, Amber	REF
115-0760-002	GROMMET, Mount	1
115-1403-001	LIGHT, LED, Clearance, Amber, 2-1/2"	1
115-1407	LIGHT, Smart Lamp, w/Grommet	REF
115-0742-002	GROMMET, Mount	1
115-1405	LIGHT, Smart Lamp, 10 Diode	1
115-1408	LIGHT, Smart Lamp, w/Grommet	REF
115-0742-002	GROMMET, Mount	1
115-1406	LIGHT, Smart Lamp, 10 Diode	1
115-1409	LIGHT, Smart Lamp, w/Adapter, Packard	REF
115-1407	LIGHT, Smart Lamp, w/Grommet	1
263-1516	ADAPTER, 1 Way	1
115-1410	LIGHT, Smart Lamp, w/Adapter, Packard	REF
115-1408	LIGHT, Smart Lamp, w/Grommet	1
263-1516	ADAPTER, 1 Way	1
115-1417	LIGHT, Flood, LED, 4"	REF
115-0742-002	GROMMET, Mount	1
115-1417-001	LIGHT, Flood, LED, 4"	1
115-1418	LIGHT, LED, Turn, Rd., Amber, 4"	REF
115-0742-002	GROMMET, Mount	1
115-1418-001	LIGHT, LED, Turn, Amber	1
115-1419	LIGHT, Strobe, Oval, Sync.	REF
115-1432-001	ASSEMBLY, Arc Light Power-Yellow	REF
115-1432-004	BRACKET, Light	1
115-1432-005	LIGHT, LED, Arc Power-Yellow	1
115-1432-002	ASSEMBLY, Arc Light Power-Red	REF
115-1432-003	LIGHT, LED, Arc Power-Red	1
115-1432-004	BRACKET, Light	1
115-1439	ASSEMBLY, LED, Reverse, Single System, 4"	REF
115-0742-002	GROMMET, Mount	1

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PART NO.	DESCRIPTION	REQ'D
115-1376-001	LIGHT, LED, Clearance, Red, 2"	1
115-1383	LIGHT, LED, STT, Red, 4"	REF
115-1384	LIGHT, LED, Back-Up, White, 4"	REF
115-1385	LIGHT, LED, Clearance, Red, 2-1/2"	REF
115-1386	LIGHT, LED, Clearance, Amber, 2-1/2"	REF
115-1387	LIGHT, LED, Turn/Marker, Amber	REF
115-1439-001	LIGHT, LED, Reverse, Single System, 4"	1
115-1534-001	LIGHT, Indicator, LED, Red, 16 mm	REF

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SERVICE MANUAL

SECTION 8 THROTTLE, SPEED & TRANSMISSION KITS

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SECTION 9

Body Controller

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40 I/O PLC



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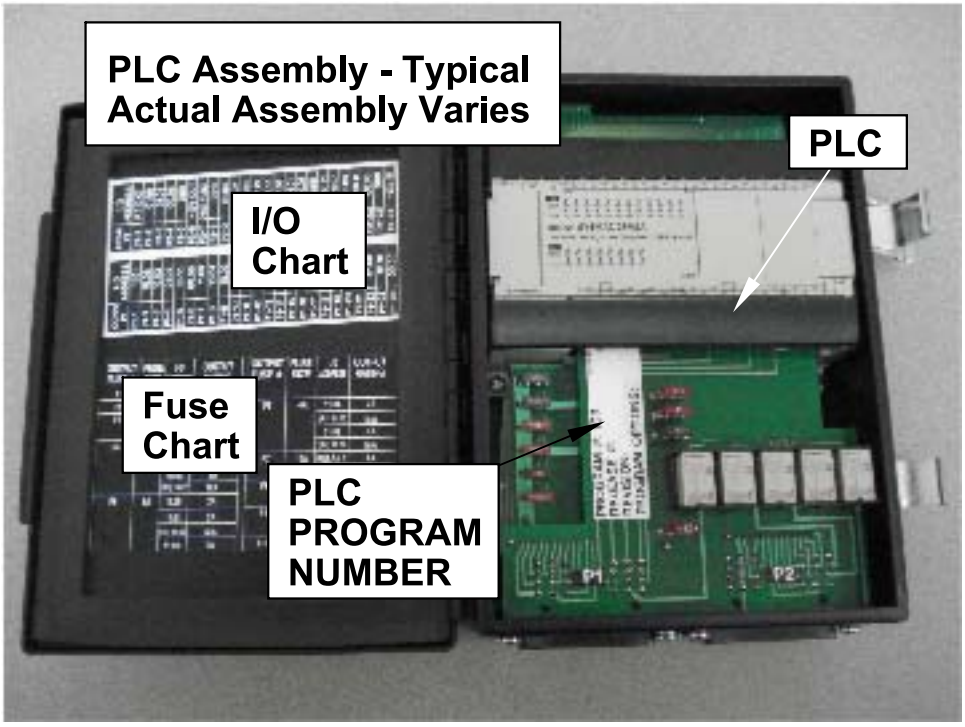
SECTION 9
Body Controller Hardware

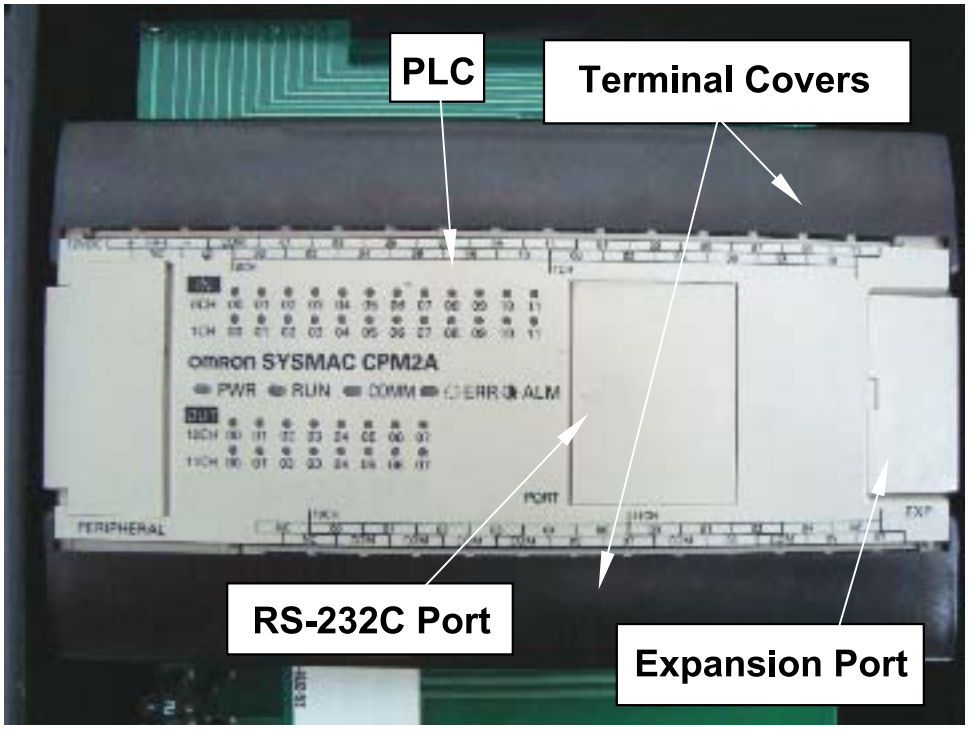
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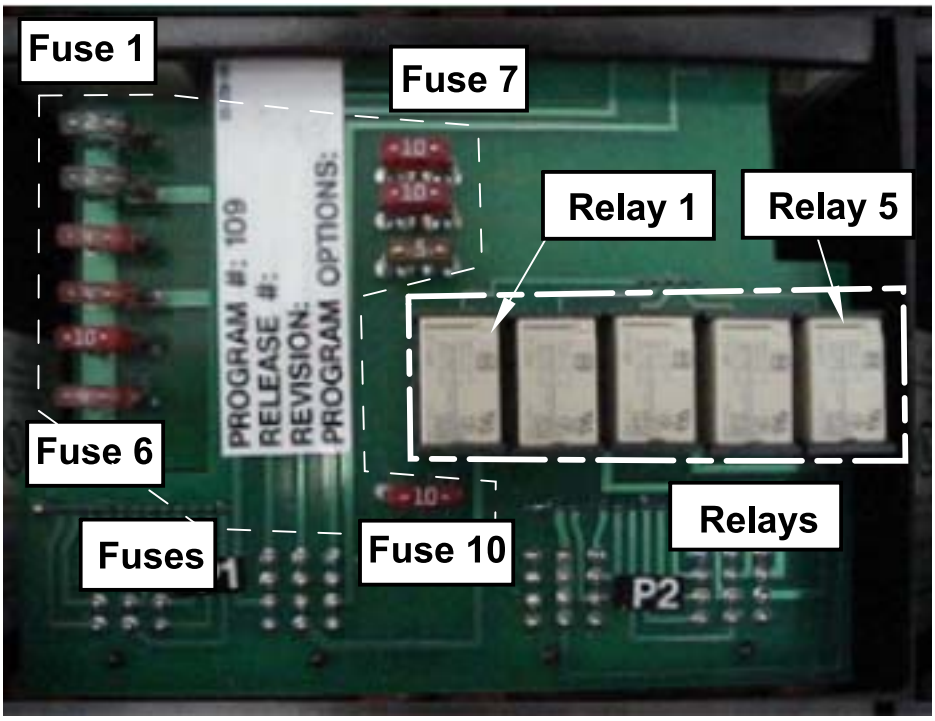
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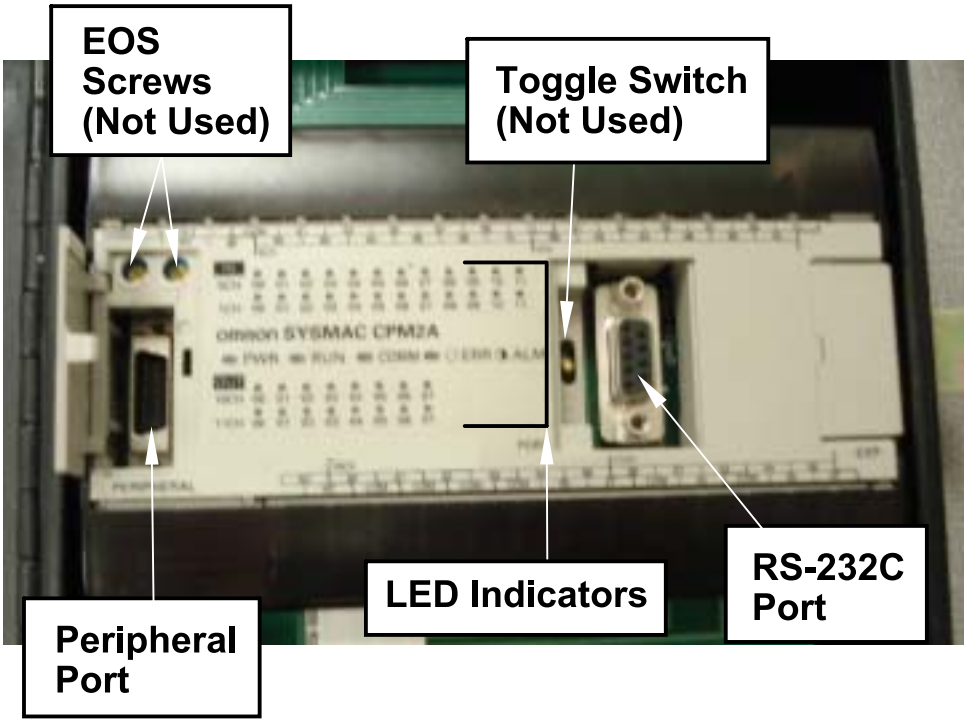




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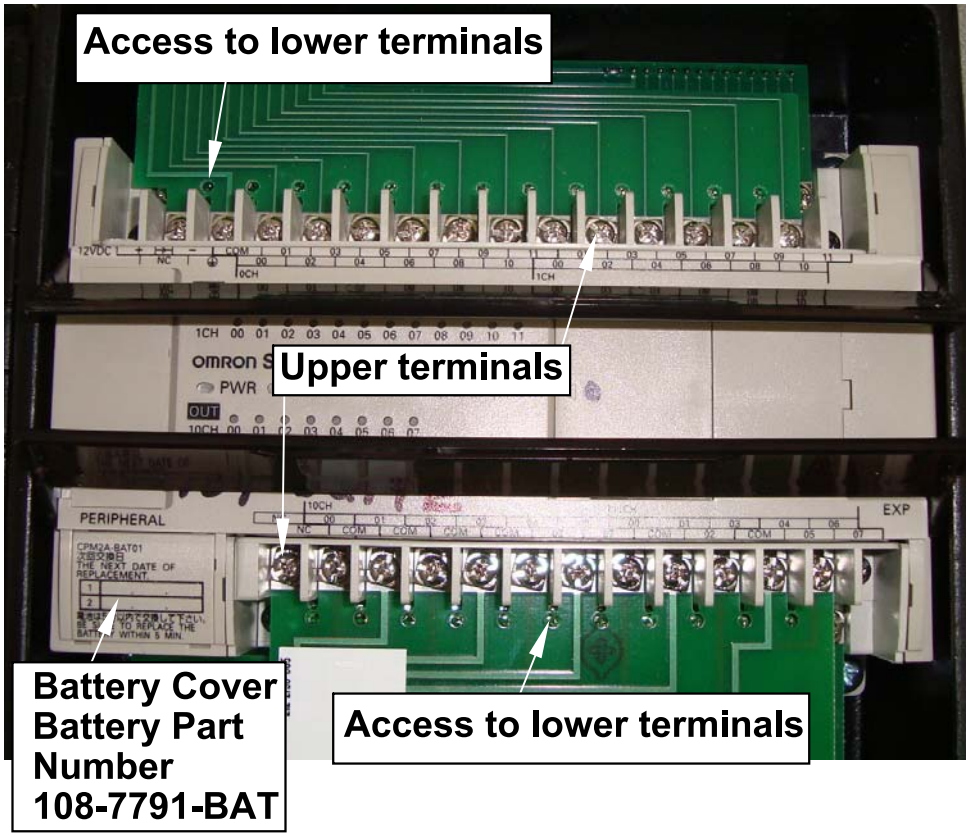
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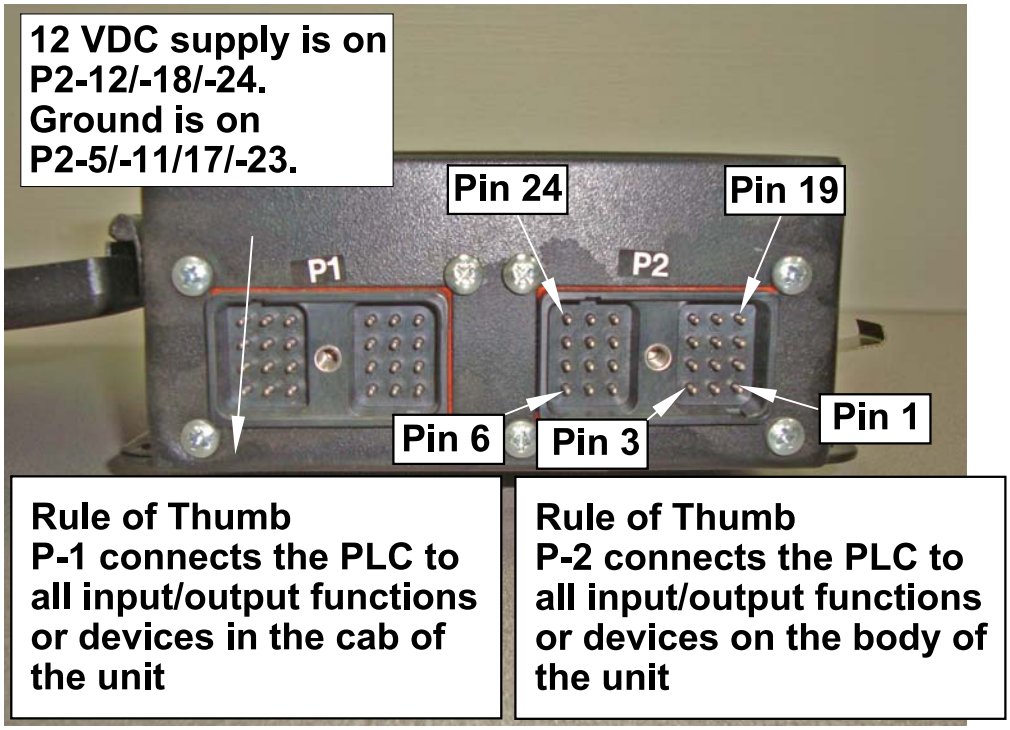




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40 I/O PLC Assembly - Page 3



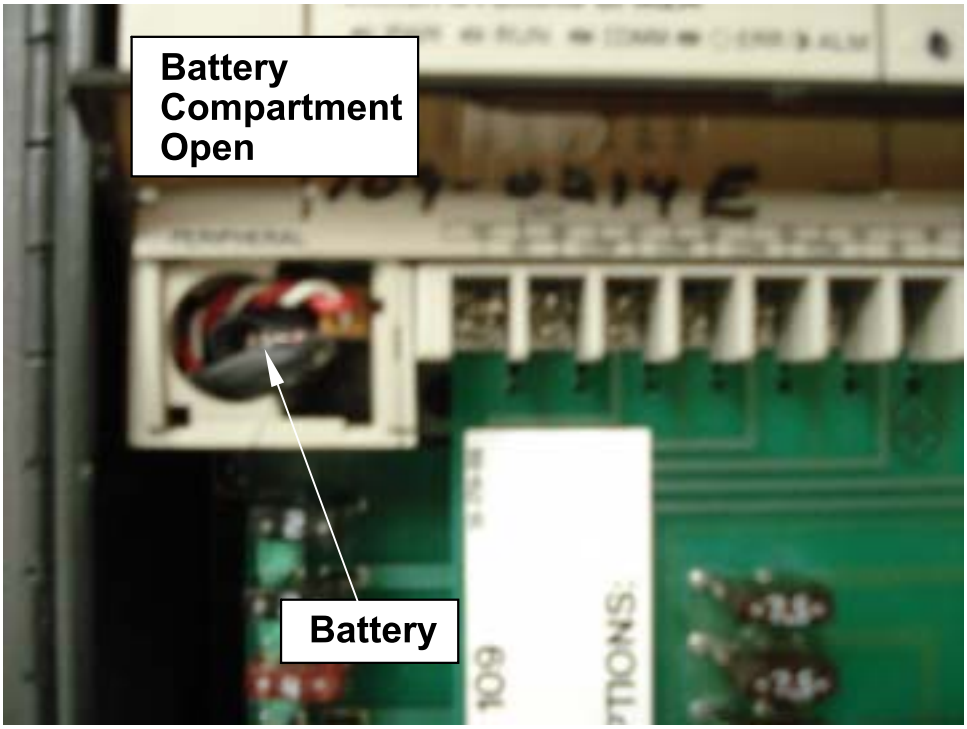


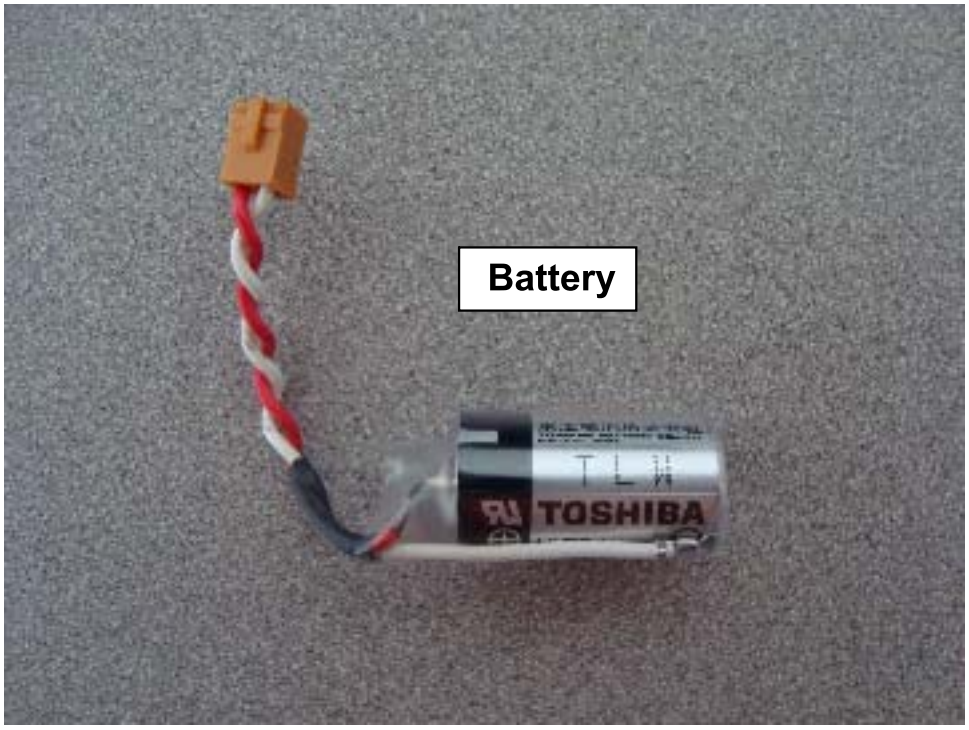
Rule of Thumb
P-1 connects the PLC to all input/output functions or devices in the cab of the unit

Rule of Thumb
P-2 connects the PLC to all input/output functions or devices on the body of the unit

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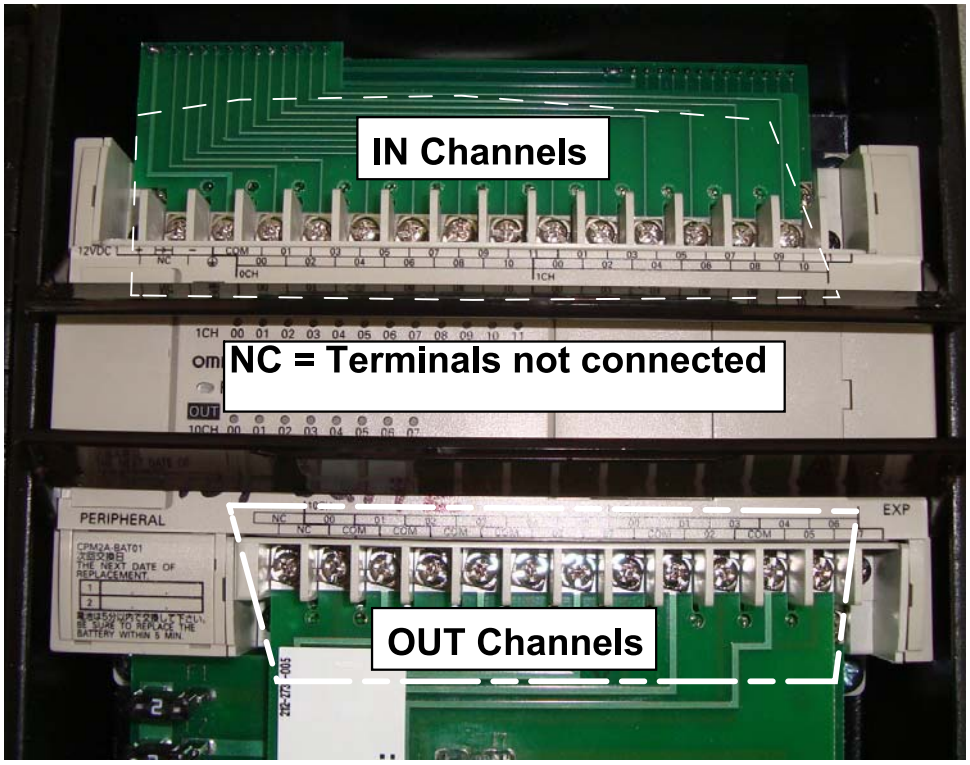
40 I/O PLC Assembly - Page 4

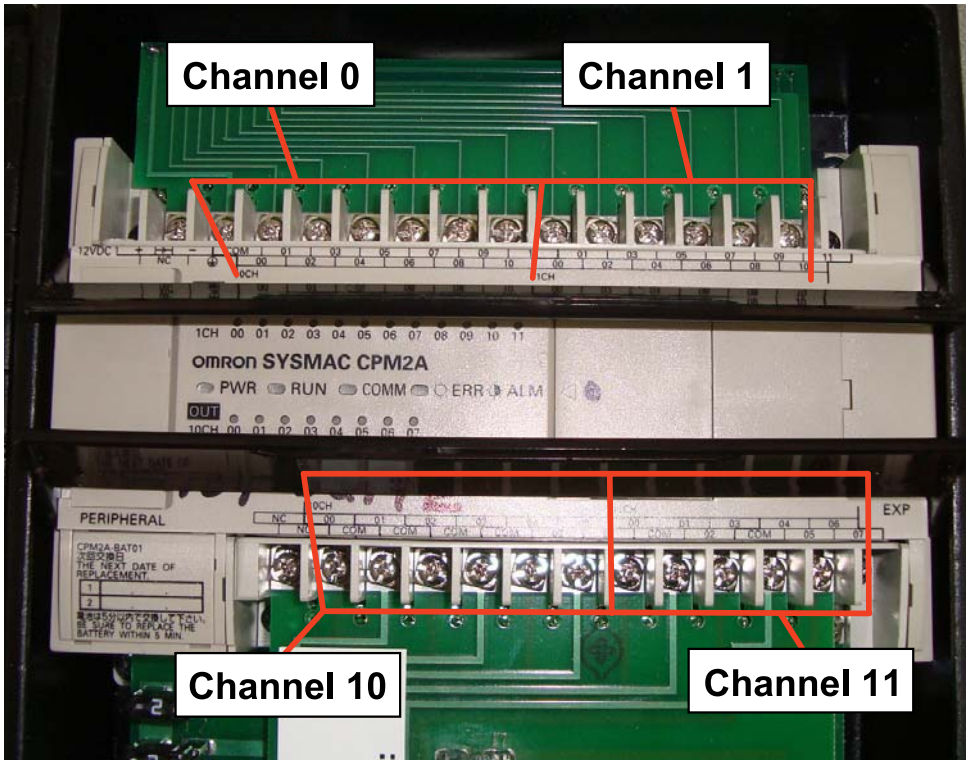




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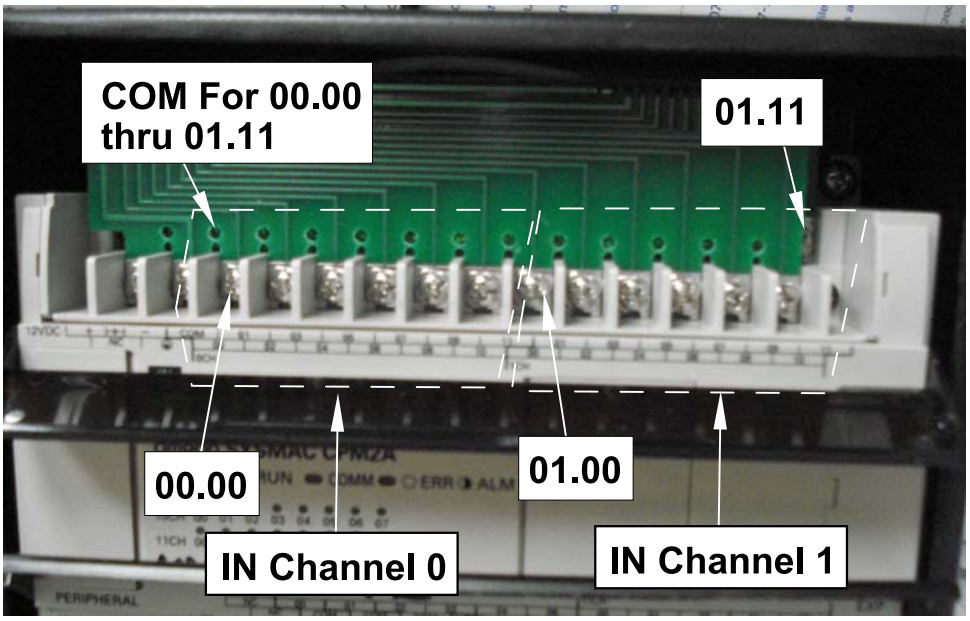
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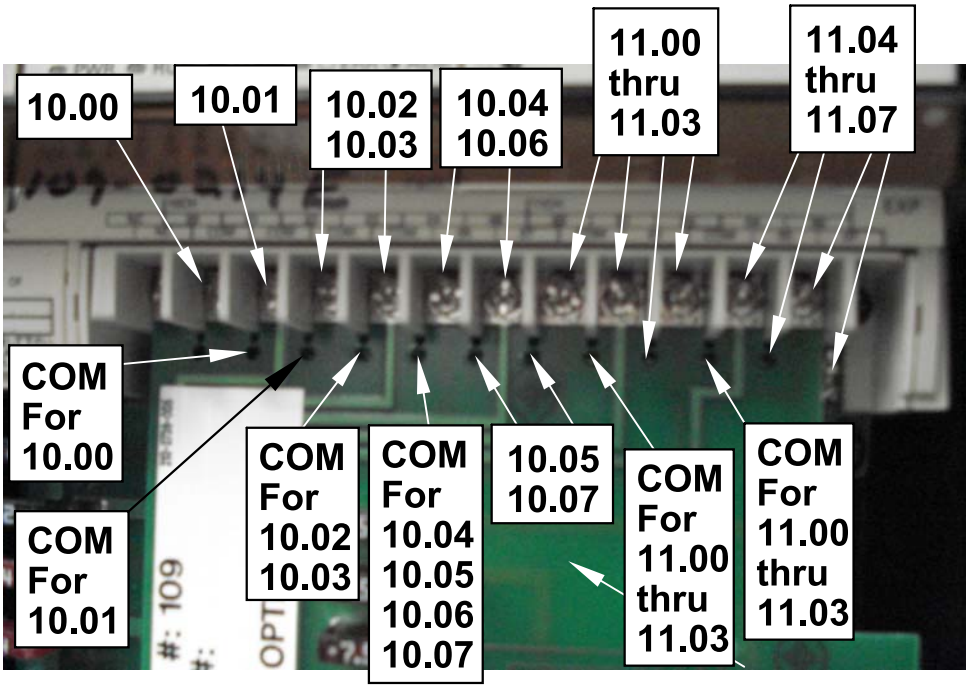




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OUT Channels 10 and 11

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PLC Battery Replacement

The PLC has a replaceable battery, Part Number 108-7791-BAT. The battery is located under the cover next to the peripheral port. The PLC manufacturer recommends you replace the battery at least every three (3) years. You must complete the replacement of the battery in less than five (5) minutes of starting the procedure to retain the PLC memory, otherwise the memory is erased and you must re-program the PLC.

Fuses and Relays

FUSE NUMBER	FUSE RATING	I/O ADDRESS	OUTPUT RATING	CIRCUIT I.D.
F1	2A	10.00	2A	P1-21
F2	2A	10.01	2A	P1-15
F3	4A	10.02	2A	P1-09
		10.03	2A	P1-03
F4	4A	10.04	2A	P1-08
		(R5) 10.05	N/A	N/A
		10.06	2A	P1-02
		(R1) 10.07	N/A	N/A
F5	5A	11.00	2A	P1-14
		11.01	2A	P1-01
		(R2) 11.02	N/A	N/A
		11.03	2A	P1-07
F6	4A	11.04	2A	P1-13
		(R3) 11.05	N/A	N/A
		11.06	2A	P1-19
		(R4) 11.07	N/A	N/A
F7	10A	RELAY #1	4A	P2-01
		RELAY #2	4A	P2-07
F8	10A	RELAY #3	4A	P2-13
		RELAY #4	4A	P2-19
F9	5A	RELAY #5*	4A	P1-20
		12V OUT	4A	COM
F10	10A	12V IN	2A	P2-24

There are five (5) micro relays on the top of the Printed Circuit Board (PCB). The relays provide increased output amperage capacity to certain circuits that require a higher output capacity.

Two fuses are necessary for each relay to function. The first fuse is for the common for the PLC outputs. The other fuse is for the relay's load contacts. A function's output energizes the relay's coil. The relay's output contacts then provide the supply voltage for the function and are protected by another fuse.

The coils in the fuse chart are shown in **( )**, for example, **(R1)** represents the coil of Relay 1, etc. **RELAY #1** represents the load contacts of Relay 1 in the fuse chart.

For example:
Relay 1 needs fuses F4 (the coil or **(R1)**) and F7 (load contacts or **RELAY#1**) for proper protection.

Power (12 VDC) enters the PLC through P2-12, P2-18, and P2-24. The PLC's ground is through P2-5, P2-11, P2-17 and P2-23.

Note: On most PLCs in units delivered pre-09/06, this relay has been removed and is not used. On PLCs in units delivered post-09/06, the relay is replaced with a serviceable relay in a base.

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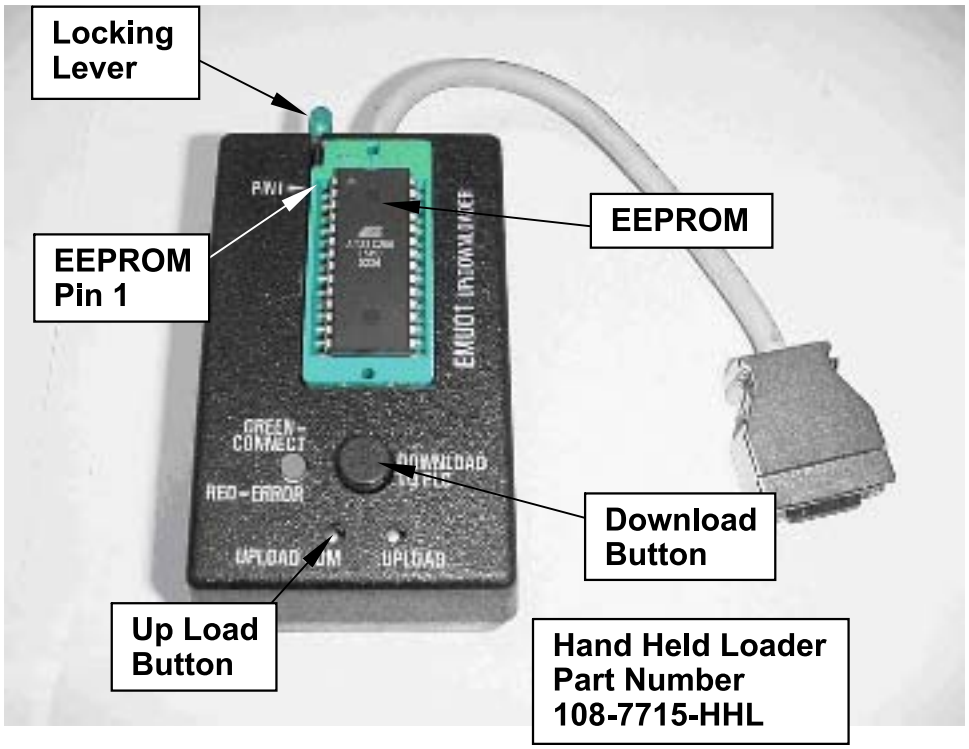
Fuse Replacement

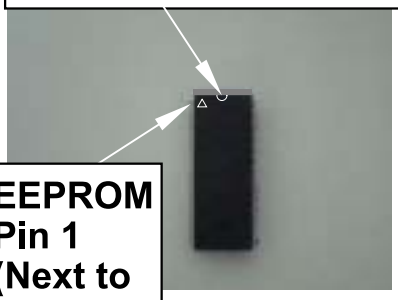
Use the Part Numbers in the following table for replacement of a fuse.

Fuse Replacement Table		
Fuse	**Rating**	**Fuse Part Number (PN)**
F1	2A	108-7112-002
F2	2A	108-7112-002
F3	4A	108-7112-004
F4	4A	108-7112-004
F5	5A	108-7112-005
F6	4A	108-7112-004
F7	10A	108-7112-010
F8	10A	108-7112-010
F9	5A	108-7112-005
F10	10A	108-7112-010

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NOTE: Triangle and half-moon highlighted with white



Hand Held Loader Connected to Peripheral Port

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Hand Held Loader Programming Procedures

Downloading Program to PLC

Use the instructions that follow to download a program from an EEPROM in the Hand Held Loader (loader) into the PLC's memory.

1. Make sure you have an EEPROM (PN 108-7715-EEP) with the correct program.
2. Move the loader's locking lever UP.
3. Put the EEPROM in the loader (PN 108-7715-HHL) with the EEPROM's triangle next to the PIN 1 location on the loader.
4. Move the locking lever DOWN and make sure it locks. This secures the EEPROM in the loader.
5. Open the cover for the PLC's Peripheral Port and attach the loader's cable connector to the Peripheral Port.
6. Turn the ignition power ON. The green light on the loader should be ON.
7. Press the DOWNLOAD TO PLC button once and wait for the green light to stop flashing.
8. Turn the ignition power OFF.
9. Wait 5 seconds and turn the ignition power ON again. The green light should be ON.
10. Press the DOWNLOAD TO PLC button again and wait for the green light to stop flashing.
11. Turn the ignition power OFF.
12. Remove the loader's cable from the Peripheral Port and close the Peripheral Port's cover.
13. Program installation is complete.

Uploading Program to Hand Held Loader

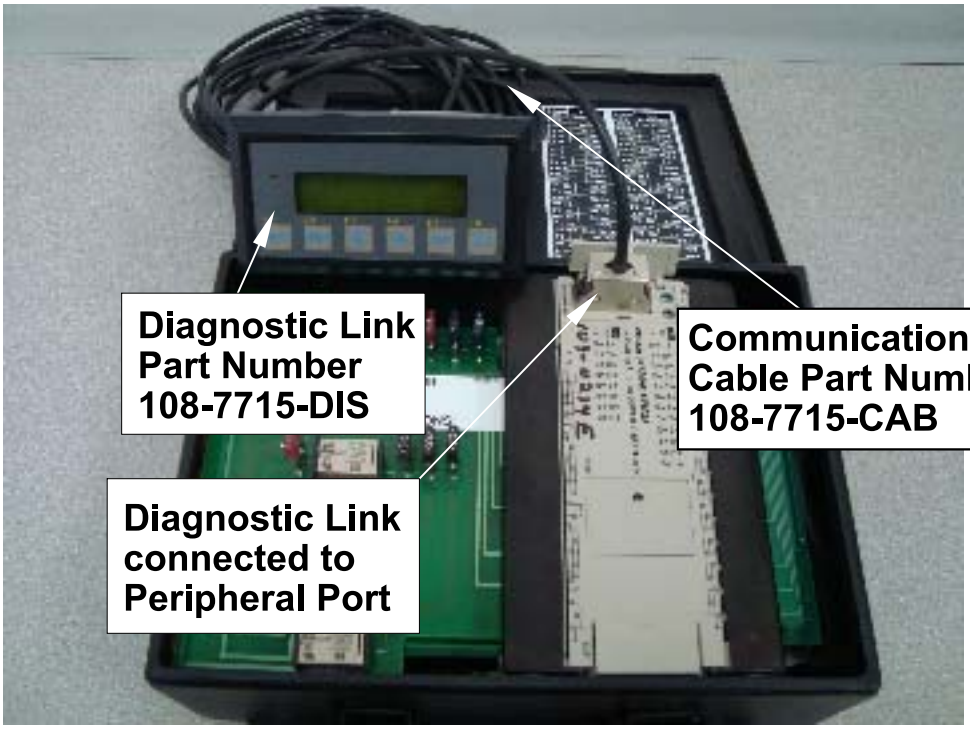
Use the instruction that follow to upload a program from the PLC's memory to an EEPROM in the Hand Held Loader.

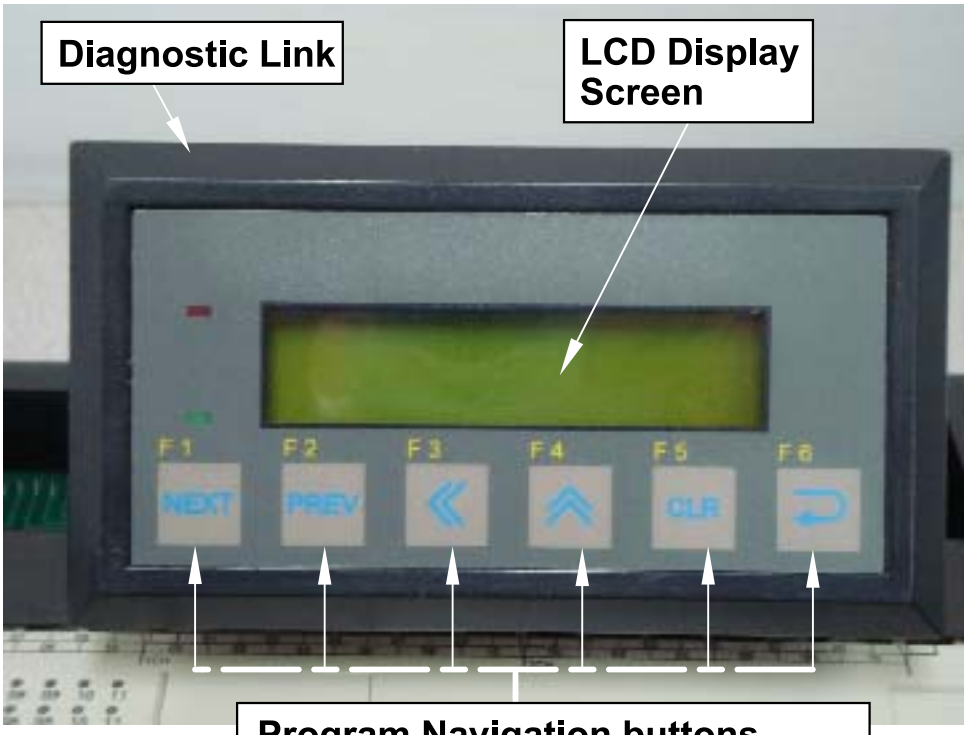
1. Make sure you have a blank EEPROM (PN 108-7715-EEP).
2. Move the loader's locking lever UP.
3. Put the EEPROM in the loader (PN 108-7715-HHL) with the EEPROM's triangle next to the PIN 1 location on the loader.
4. Move the locking lever DOWN and make sure it locks. This secures the EEPROM in the loader.
5. Open the cover for the PLC's Peripheral Port and attach the loader's cable connector to the Peripheral Port.
6. Turn the ignition power ON. The green light on the loader should be ON.
7. Press the UPLOAD + DM button once and wait for the green light to stop flashing.
8. Turn the ignition power OFF.
9. Remove the loader's cable from the Peripheral Port and close the Peripheral Port's cover.
10. The upload of the PLC's program to the loader's EEPROM is complete.

NOTE: There is no memory in the loader without an EEPROM installed in the loader.

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Diagnostic Link

The Diagnostic Link (PN 108-7715-DIS) is a hand-held tool that connects to the PLC's Peripheral Port with a Communication Cable (PN 108-7715-CAB).

Refer to the applicable Body Controller Software manual for the specific instructions for a PLC program.

You use the Diagnostic Link to:

Perform the calibration setup for a newly installed PLC (*password required)*
Monitor input status
Monitor output status
Test output device circuits by forcing outputs to ON
View system parameters
Modify system parameters (*password required)*
View faults
View fault history.

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40 I/O PLC - OIN



SERVICE MANUAL

SECTION 9
Body Controller Software Program 109-0245

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SMS9-BCS-SWS-706241-0110

Customer Support

Heil Environmental ▪ 4301 Gault Ave. North . Fort Payne, AL 35967-9984 · 866-275.4345

Section 1: PLC Hardware

1.01: PLC Indicator Lights

Located on the face of the PLC are the PWR, RUN, COMM, and ERR indicator lights.
The PWR indicator should light when the PLC has power.
The Run light indicates that the PLC CPU is in run mode, which is the normal mode of operation.
The COMM indicator will flash during communication between the PLC and other devices.
The ERR light indicates that an error has occurred in the Central Processing Unit (CPU). With this indicator flashing the error is non-fatal and the processor will continue to run. If the indicator is continuous, the error is fatal and the processor will be shutdown. In the event of a fatal error contact the Heil technical support group.

1.02: Inputs

The PLC Inputs are activated by a positive +12 volt signal. All switches proximity, pressure, toggle, push buttons, etc., used as input devices to the PLC, supply a +12 volt signal to a PLC input to turn the input on. With an Input on, a corresponding LED indicator located on the face of the PLC will also be on.

1.03: Outputs

During each cycle the CPU will analyze the status of the inputs, and based upon the logic of the programming, will produce the appropriate +12v DC outputs. With an output on a corresponding LED indicator, located on the face of the PLC, will also be on.

1.04: Communication Ports

There are two communication ports on the face of the PLC, peripheral and RS232. The peripheral port will be the utilized to download user programs via the hand held loader (P/N: 108-7715-HHL). It will also be used to connect the Diagnostic Link.

1.05: Diagnostic Link

The Diagnostic Link is a hand held tool, which can be connected to the PLC through the peripheral port.
Reference document 109-0245.xls for the diagnostic link menu structure. The Diagnostic Link program used for 109-0218 programs should be used for program 109-0245.

This Link can be used to achieve the following:

a. Complete the calibration setup for a newly installed PLC *(password required)*
b. Monitor input status
c. Monitor output status and test output device circuits by forcing outputs ON
d. View system parameters
e. Modify system parameters *(password required)*
f. View faults as well as fault history

1.06: Circuit Identification

The input and output circuits are identified by there point of origin at the PLC. Each connector on the PLC assembly is assigned a number P1 and P2. Each wire is also assigned a number representing the connector and pin number of its origin. Example, the wire exiting connector P1 on pin #10 will be identified “P1-10”. The circuit identifications are detailed in the table below, as well as on a decal inside the lid of the PLC enclosure.

CONN	I/O
P1	ADDRESS
P1-1	11.01
P1-2	10.06
P1-3	10.03
P1-4	01.02
P1-5	00.10
P1-6	00.06
P1-7	11.03
P1-8	10.04
P1-9	10.02
P1-10	01.04
P1-11	00.08
P1-12	00.04
P1-13	11.04
P1-14	11.00
P1-15	10.01
P1-16	01.06
P1-17	01.00
P1-18	00.02
P1-19	11.06
P1-20	10.05
P1-21	10.00
P1-22	01.08
P1-23	01.10
P1-24	00.00

CONN	I/O
P2	ADDRESS
P2-1	(R1) 10.07
P2-2	01.09
P2-3	01.05
P2-4	00.05
P2-5	GND
P2-6	+12 OUT
P2-7	(R2) 11.02
P2-8	01.11
P2-9	01.03
P2-10	00.07
P2-11	GND
P2-12	+12 IN
P2-13	(R3) 11.05
P2-14	01.07
P2-15	01.01
P2-16	00.01
P2-17	GND
P2-18	+12 IN
P2-19	(R4) 11.07
P2-20	00.09
P2-21	00.11
P2-22	00.03
P2-23	GND
P2-24	+12 IN

		PROGRAM NUMBER: 109-0245 PROGRAM RELEASE LEVEL: - ECO NO:DPF09020
		RECYCLE 2000 OIN
CAB INPUT FUNCTIONS		
A01	CHASSIS TACH SIGNAL	P1-24 (00.00)
A02	CHASSIS NEUTRAL SIGNAL	P1-18 (00.02)
A03	SYSTEM POWER SWITCH	P1-12 (00.04)
A04	PACKER EXTEND PUSH BUTTON	P1-11 (00.08)
A05	PACKER RETRACT PUSH BUTTON	P1-05 (00.10)
A06	HYDRAULIC PUMP ENABLE PUSH BUTTON	P1-23 (01.10)
CAB OUTPUT FUNCTIONS		
B01	IN-CAB ALARM	P1-21 (10.00)
B02	BODY RAISED INDICATOR	P1-15 (10.01)
B03	LOWER TAILGATE OPEN INDICATOR	P1-09 (10.02)
B04	RH BUCKET RAISED INDICATOR	P1-03 (10.03)
B05	PRIMARY PUMP W/EOS	P1-20 (10.05)
B06	FILTER BYPASS INDICATOR	P1-02 (10.06)
B07	PACKER EXTEND SOLENOID	P1-14 (11.00)
B08	PACKER RETRACT SOLENOID	P1-01 (11.01)
B09	LH BUCKET RAISED INDICATOR	P1-07 (11.03)
B10	UPPER TAILGATE OPEN INDICATOR	P1-13 (11.04)
B11	THROTTLE ADVANCE	P1-19 (11.06)
BODY INPUT FUNCTIONS		
C01	LH BUCKET LOWERED PROX	P2-16 (00.01)
C02	REMOTE THROTTLE ADVANCE REQUEST	P2-22 (00.03)
C03	UPPER TAILGATE CLOSED PROX	P2-04 (00.05)
C04	PACKER FULL EXTENDED PROX	P2-10 (00.07)
C05	PACKER FULL RETRACTED PROX	P2-20 (00.09)
C06	PACKER PRESSURE SWITCH	P2-21 (00.11)
C07	RH BUCKET LOWERED PROX	P2-15 (01.01)
C08	LOWER TAILGATE CLOSED PROX	P2-09 (01.03)
C09	BODY LOWERED PROX	P2-03 (01.05)
C10	HYDRAULIC FILTER PRESSURES SWITCH	P2-14 (01.07)
C11	REMOVE AUTO-PACK	P2-02 (01.09)
BODY OUTPUT FUNCTIONS		
D01	NONE	
OPTION IN-CAB INPUT FUNCTIONS		
E01	FRONT STROBE SWITCH	P1-06 (00.06)
E02	REAR STROBE SWITCH	P1-17 (01.00)
E03	SIDE FLOOD LAMP SWITCH	P1-22 (01.08)
OPTION IN-CAB OUTPUT FUNCTIONS		

		PROGRAM NUMBER: 109-0245 PROGRAM RELEASE LEVEL: - ECO NO:DPF09020
		RECYCLE 2000 OIN
F01	NONE	
OPTION BODY INPUT FUNCTIONS		
G01	NONE	
OPTION BODY OUTPUT FUNCTIONS		
H01	REAR STROBE LIGHT	P2-01 (10.07)
H02	LH SIDE FLOOD LAMP	P2-07 (11.02)
H03	RH SIDE FLOOD LAMP	P2-13 (11.05)
H04	FRONT STROBE LIGHT	P2-19 (11.07)
SPARE IN-CAB INPUTS		
N/A	SPARE IN-CAB INPUT	P1-04 (01.02)
N/A	SPARE IN-CAB INPUT	P1-10 (01.04)
N/A	SPARE IN-CAB INPUT	P1-16 (01.06)
SPARE IN-CAB OUTPUTS		
N/A	SPARE IN-CAB OUTPUT	P1-08 (10.04)
SPARE BODY INPUTS		
N/A	SPARE BODY INPUT	P2-08 (01.11)
SPARE BODY OUTPUTS		
N/A	NONE	

1.07: PLC Fusing

The PLC is equipped with multiple fuses located on circuit boards in the PLC enclosure. These fuses are detailed in the chart below as well as on the fuse decal inside the lid of the PLC enclosure. The fuse numbers are etched into the printed circuit board at each fuse location.

NOTE: Technical Publications has changed this document with the removal of the fuse ratings. Refer to the 40 I/O PLC Service Manual, SMS9-BCH-706217 for the ratings and part numbers of each fuse.

Section 2: PLC Calibration Setup

When installing a PLC it will be necessary to complete the calibration setup procedure, detailed in this section. This calibration is to be performed using the PLC Diagnostic Link. Reference document 109-0245.xls for the diagnostic link menu structure. Completion of this procedure will generate a calibration number, which is to be recorded on a decal inside the PLC enclosure. The calibration number will be ordered as shown in the table below. A password is required to access the Calibration Setup portion of the diagnostic link menu.

Example: CAL # 0245-001-1210101

PROGRAM NUMBER	RELEASE LEVEL	PACKAGE NUMBER	OPTION FIELD #1	OPTION FIELD #2	OPTION FIELD #3	OPTION FIELD #4	OPTION FIELD #5	OPTION FIELD #6	OPTION FIELD #7
0245-	1	01-	1	2	1	0	1	0	1

2.01: PLC Time and Date Setting, Program and Release Level Verification

Step 1: The first setting required is the time and date. Reference 109-0245.xls for instructions.

Step 2: Once the time and date have been set the Link will display the user program number, verify that the program number is correct. Next the Release Level will be displayed verify the release lever to be the latest.

2.02: Option Selection

Cross-reference the options requested on the unit sales order to the options available. Set the applicable option fields accordingly. The following tables detail the options available.

2.02.01: Option Selection

Note: Only package #04 is valid for this program. Any other package is not supported.

Option Table

FIELD #2	0 = Disabled
	1 = Rear Strobe, In-Cab Enable
	2 = Rear Strobe, In-Cab or Hydraulic Pump Enable
FIELD #3	0 = Disabled
	1 = Front Strobe, In-Cab Enable
	2 = Front Strobe, In-Cab or Hydraulic Pump Enable
FIELD #4	0 = Disabled
	1 = Side Flood, In-Cab Enable

2.04: Calibration Number Verification

Once the I/O Package and Options have been selected the new calibration number can be viewed for verification. This provides an opportunity to correct any incorrect settings.

2.05: Engine Idle Calibration

The engine idle calibration can be performed by two methods. The first method is through the diagnostic link. This method requires the engine to be at idle speed during calibration, and is performed by simply scrolling the engine idle speed set point to match the actual engine idle speed. Upon completion, verify the calibration by comparing the engine RPM to the chassis tachometer reading.

The second method requires the engine speed to be at 1000 RPM during calibration, and is performed as follows:

a. Turn the System Power Switch Off
b. Press and hold the Packer Extend and Retract buttons for ten seconds or until the in cab alarm begins to sound.
d. Verify the calibration by checking the pump overspeed with the chassis tachometer reading.

2.06: Setup Completion

It will be necessary to cycle ignition power before all changes will take place. Once ignition power has been cycled verify unit functionality, Time and Date, and Engine Speed. If functionality is correct record the calibration number on the CAL # decal.

Section 3: Parameter Defaults

3.02 Parameter Defaults

Parameter	Default Setting
A. Primary Pump Max. Engage Speed ----	900 RPM
B. Primary Pump Max. Operate Speed ----	1400
C. Start Filter Warning ----------	5 Hours
D. Start Filter Shutdown ----------	6 Hours
E. Packer Pressure Switch Time ---------	3 Seconds

Section 4: I/O Functions

The following sheets detail the functionality for each of the input and output function provided through the PLC. Document 109-0245.xls references the functions in this program.

4.01: Standard In-Cab Input Functions

A01 Input Function -- Chassis Tach. Signal (In Cab Input 00.00)

This circuit monitors the signal generated by the alternator "R" Stator. This signal is typically a -1.4V to +15V square wave, of which the frequency varies relative to engine speed. The PLC uses the Engine Idle, "Tach. Hz/2 at Engine Idle" and "Tach. Hz/2" parameters to form a proportional equation of which the result is engine RPM. This equation is executed every ½ second.

Modifiable Parameters	Default Setting
A. Engine Idle	0

Function Logic

Input Device	Status	I/O Address	Status
"R" Stator Pulse	High	00.00	ON
"R" Stator Pulse	Low	00.00	OFF

A02 Input Function -- Chassis Neutral Signal (In Cab Input 00.02)

This circuit monitors the transmission neutral circuit.

Modifiable Parameters	Default Setting
A. None	N/A

Function Logic

Input Device	Status	I/O Address	Status
A. Chassis Transmission	In Neutral	00.02	ON

A03 Input Function -- System Power Switch (In Cab Input 00.04)

This circuit monitors the on/off status of the system power switch.

Modifiable Parameters	Default Setting
A. None	N/A

Function Logic

Input Device	Status	I/O Address	Status
System Power Switch	Activated	00.04	ON

A04 Input Function -- Packer Extend Push Button (In Cab Input 00.08)

This circuit monitors the on/off status of the packer extend button.

Modifiable Parameters	Default Setting
A. None	N/A

Function Logic

Input Device	Status	I/O Address	Status
Extend Button	Activated	00.08	ON

A05 Input Function -- Packer Retract Push Button (In Cab Input 00.10)

This circuit monitors the on/off status of the packer retract button.

Modifiable Parameters	Default Setting
A. None	N/A

Function Logic

Input Device	Status	I/O Address	Status
Retract Button	Activated	00.10	ON

A06 Input Function -- Hydraulic Pump Enable Push Button (In Cab Input 01.10)

This circuit monitors the on/off status of the hydraulic pump enable button.

Modifiable Parameters	Default Setting
A. None	N/A

Function Logic

Input Device	Status	I/O Address	Status
Pump Enable Button	Activated	01.10	ON

4.02: Standard In-Cab Output Functions

B01 Output Function – In-Cab Alarm (In Cab Output 10.00)

This output function controls the cab alarm circuit.

Default Parameters	Default Setting
A. None	N/A

Conditions Necessary to activate the circuit

Function or Component	Channel	LED Lamp	LED Status
A. Critical Fault	N/A	N/A	N/A
B. or System Fault	N/A	N/A	N/A
C. or Body/Tailgate Alarm	0	09	OFF
D. In-Cab Alarm	12	00	ON

Note: With either (A, B, or C) true, will activate the In-Cab Alarm (D).

B02 Output Function (Option) -- Body Raised Indicator (In Cab Output 10.01)

This output function controls the Body Raised Indicator light.

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. Body Down Proximity Switch	Deactivated	01.05	OFF

Note: With condition (A) true, the Body Raised indicator will activate.

B03 Output Function – Lower Tailgate Open Indicator (In Cab Output 10.02)

This output function controls the Tailgate Open indicator light.

Modifiable Parameters	Default Setting
A. None	N/A

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. Tailgate Closed Proximity Switch	Deactivated	01.03	OFF

Note: With conditions (A) true, the Tailgate Open indicator will activate.

B04 Output Function – R.H. Bucket Raised Indicator (In Cab Output 10.03)

This output function controls the R.H. Bucket Raised indicator and L.H. Bucket Raise interlock solenoid. The interlock solenoid prevents both buckets from raising at the same time.

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. R.H. Bucket Down Proximity Switch	Deactivated	01.01	OFF

Note: With condition (A) true, the Bucket indicator light and interlock solenoid will activate.

B05 Output Function – Hydraulic Pump (In Cab Output 10.05)

This output function controls hydraulic pump (P1), configured with a single vane pump. This function will engage the pump upon activation of the chassis service brake if the engine speed is below the RPM value set by the Primary Pump Max. Engage Speed.

Modifiable Parameters **Default Setting**

A. Pump Max. Engage Speed ----------900 RPM
B. Max. Operate Speed ----------1400 RPM

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. System Power Switch	Activated	00.04	ON
B. and Hydraulic Pump	Enabled	01.10	ON (momentary)
C. or Chassis Transmission	In Neutral	00.02	ON

Note: With conditions (A and B) true, condition (C) will operate the pump within the RPM range set by the lift pump speed parameters.

B06 Output Function -- Filter Bypass Indicator (In Cab Output 10.06)

This output function controls the filter bypass indicator. Activation of this light indicates that the filter is or has been in bypass, within the past fifteen minutes. This indicator will flash, once for each accumulated hour of operation with the filter in bypass, then pause for approximately 3 seconds. Once the accumulated time has reached the "Start Filter Warning" time the indicator will become continuous. Once the accumulated time reaches the "Start Filter Shutdown" time Fault #32 will be set, the hydraulic pump will be disengaged and the indicator will flash continuously. Under this condition, the pump will only be allowed to operate in 3-minute intervals. Turning the System Power Switch off then on again will reset the 3-minute time interval. The pump will continue to operate in this fault mode until the hydraulic filter has been serviced and is no longer bypassing oil.

Modifiable Parameters **Default Setting**

A. Start Filter Warning ---------- 5 Hours
B. Start Filter Shutdown Warning ----- 6 Hours

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. Vehicle Engine	Running	N/A	N/A
B. and System Power Switch	Activated	00.04	ON
C. and Hydraulic Pump	Activated	10.05	ON
D. and Filter Pressure Switch	Activated	01.07	OFF

Note: These conditions indicate that the filter is in bypass. Each time this condition occurs the indicator will continue the flash sequence for 15 minutes after bypass conditions have subsided. Under cold weather conditions, the hydraulic filter may go into bypass when low oil temperatures create a high oil viscosity. This will subside when the hydraulic system reaches operating temperature.

B07 Output Function -- Packer Extend Solenoid (In Cab Output 11.00)

This output function controls the Packer Extend circuit. There are two modes for packer operation Auto and Manual. To toggle the control between Auto and Manual modes, turn the System Power switch on, press and hold the Extend and Retract buttons simultaneously for five seconds or until the in cab alarm stops sounding. With the tailgate open the packer will operate in manual mode only.

Modifiable Parameters	**Default Setting**
A. None	N/A

Conditions necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. System Power Switch	Activated	00.04	ON
B. and Hydraulic Pump	Enabled	01.10	ON (momentary)
C. and Packer Retract P.B.	Deactivated	00.10	OFF
D. and Packer Full Extend Proximity Switch	Deactivated	00.07	OFF
E. and Packer Extend P.B.	Activated	00.08	ON (momentary)

Note: With the conditions (A, B, C, and D) true, Function (E) will activate the Packer Extend Solenoid.

B08 Output Function -- Packer Retract Solenoid (In Cab Output 11.01)

This output function controls the packer retract circuit. There are two modes for packer operation Auto and Manual. To toggle the control between Auto and Manual modes, turn the System Power switch on, press and hold the Extend and Retract buttons simultaneously for five seconds or until the in cab alarm stops sounding. With the tailgate open the packer will operate in manual mode only.

Modifiable Parameters	**Default Setting**
A. Packer Pressure Switch Time	3 Seconds

Conditions necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A System Power Switch	Activated	00.04	ON
B. and Hydraulic Pump	Enabled	01.10	ON (momentary)
C. and Packer Extend P.B.	Deactivated	00.08	OFF
D. and Packer Retract Button	Activated	00.10	ON (500mS)
E. or Packer Full Extend Proximity Switch	Activated	01.07	ON (500mS during auto-pack)
F. or Packer Pressure Switch	Activated	00.11	ON (3 Sec. during auto-pack
G. or Packer Extend Solenoid	Activated	11.00	ON (31 Sec. during auto-pack)

Note: With conditions (A, B, and C) true, the retract function can be manually operated by pressing the retract button (D). During the Auto-Pack cycle either function (E, F or G) will interrupt the packer extend and start retracts.

B09 Output Function – L.H. Bucket Raised Indicator/Interlock (In Cab Output 11.03)

This output function controls the L.H. Bucket Raised indicator and R.H. Bucket Raise interlock solenoid. The interlock solenoid prevents both buckets from raising at the same time.

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. R.H. Bucket Down Proximity Switch	Deactivated	00.01	OFF

Note: With condition (A) true, the Bucket indicator light and interlock solenoid will activate.

B10 Output Function – Upper Tailgate Open Indicator (In Cab Output 11.04)

This output function controls the Upper Tailgate Open indicator light R2000.

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. Upper Tailgate Proximity Switch ------	Deactivated ----	00.05 ----------	OFF

Note: With condition (A) true, the Tailgate Open indicator will activate.

B11 Output Function -- Engine Throttle Advance With Auto-Pack & Bucket Raise (In Cab Output 11.06)

This output function controls the Engine Throttle Advance circuit. When activated this circuit automatically advances the engine speed to a predetermined RPM value. This is achieved by interfacing the PLC to the chassis electronic controls. The RPM value, to which the engine speed advances, is determined by the programming of the Engine or Vehicle Electronic Control Unit. Operation of the throttle advance will be disabled with the system set to operate in manual mode. To toggle the control between Auto and Manual modes press and hold the Extend and Retract buttons simultaneously for five seconds or until the in cab alarm stops sounding.

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. Chassis Transmission ----------	In Neutral -------	00.02 ----------	ON
B. and Bucket Raise Pressure Switch -----	Activated -------	00.03 ----------	ON
C. or Auto-Pack Extend Solenoid ----------	Activated -------	10.06 ----------	ON
D. or Auto-Pack Retract Solenoid ----------	Activated -------	11.00 ----------	ON

Note: With condition (A) true, either of Input Functions (B, C or D) will activate the Engine Throttle Advance.

4.03: Standard Body Input Functions

C01 Input Function – Bucket Down Prox L.H. Proximity Switch (Body Input 00.01)

This circuit monitors the on/off status of the L.H. Bucket Down proximity switch.

Function Logic

Input Device	Status	I/O Address	Status
L.H. Bucket Proximity Switch -	Activated	00.01	ON

C02 Input Function – Remote Throttle Advance Request (Body Input 00.03)

This circuit monitors the on/off status of the L.H. and R.H. Bucket Down pressure switches.

Function Logic

Input Device	Status	I/O Address	Status
L.H. Bucket Pressure Switch	Activated	00.03	ON
R.H. Bucket Pressure Switch	Activated	00.03	ON

C03 Input Function – Upper Tailgate Closed Proximity Switch (Body Input 00.05)

This circuit monitors the on/off status of the Upper Tailgate Closed Proximity Switch.

Function Logic

Input Device	Status	I/O Address	Status
Upper Tailgate Closed Prox.	Activated	00.05	ON

C04 Input Function -- Packer Full Extend Proximity Switch (Body Input 00.07)

This circuit monitors the on/off status of the Packer Full Extend Proximity Switch.

Modifiable Parameters	Default Setting
A. None	N/A

Function Logic

Input Device	Status	I/O Address	Status
Full Extend Proximity Switch	Activated	00.07	ON

C05 Input Function -- Packer Full Retract Proximity Switch (Body Input 00.09)

This circuit monitors the on/off status of the Packer Full Retract Proximity Switch.

Modifiable Parameters	Default Setting
A. None	N/A

Function Logic

Input Device	Status	I/O Address	Status
Full Retract Proximity Switch	Activated	00.09	ON

C06 Input Function -- Packer Pressure Switch (Body Input 00.11)

This circuit monitors the on/off status of the Packer Pressure Switch. The Packer Pressure Switch Time is a programmed time delay which delays the response to the activation of this input.

Modifiable Parameters	Default Setting
A. Packer Pressure Switch Time	3 Seconds

Function Logic

Input Device	Status	I/O Address	Status
Packer Pressure Switch	Activated	00.11	OFF

C07 Input Function – Bucket Down Prox R.H. Proximity Switch (Body Input 01.01)

This circuit monitors the on/off status of the R.H. Bucket Down proximity switch.

Function Logic

Input Device	Status	I/O Address	Status
R.H. Bucket Proximity Switch -	Activated	01.01	ON

C08 Input Function – Lower Tailgate Closed Proximity Switch (Body Input 01.03)

This circuit monitors the on/off status of the Tailgate Closed Proximity Switch.

Modifiable Parameters	Default Setting
A. None	N/A

Function Logic

Input Device	Status	I/O Address	Status
Tailgate Closed Proximity Switch -	Activated	01.03	ON

C09 Input Function -- Body Down Proximity Switch (Body Input 01.05)

This circuit monitors the on/off status of the Body Down Proximity Switch.

Function Logic

Input Device	Status	I/O Address	Status
A. Body Down Proximity Switch	Activated	01.05	ON

C10 Input Function -- Filter Pressure Switch (Body Input 01.07)

This circuit monitors the on/off status of the Filter Pressure Switch.

Modifiable Parameters	Default Setting
A. None	N/A

Function Logic

Input Device	Status	I/O Address	Status
Filter Pressure Switch	Activated	01.07	OFF

C11 Input Function – Remote Auto-Pack Signal (Body Input 01.09)

This circuit monitors the on/off status of the Remove Auto-Pack signal from the toggle switches for the buckets.

Function Logic

Input Device	Status	I/O Address	Status
Remote Auto-Pack SW	Activated	01.09	ON

4.04: Standard Body Output Functions

There are no standard Body Output Functions for this unit.

4.05: Optional In-Cab Input Functions

E02 Input Function (Option) -- Rear Strobe Light In-Cab Enable (In Cab Input 01.00)

This circuit monitors the status of the Rear Strobe enable circuit. There are two methods of activation for this function, In-Cab Switch Enable and In-Cab Switch or Reverse Enable depending on the option selected with] the handheld.

Function Logic

Input Device	Status	I/O Address	Status
Rear Strobe Enable Circuit	-----Activated	-----01.00 ----------	ON

E01 Input Function (Option) -- Front Strobe Light In-Cab Enable (In Cab Input 00.06)

This circuit monitors the status of the Front Strobe enable circuit.

Function Logic

Input Device	Status	I/O Address	Status
Front Strobe Enable Circuit	-------Activated	-----00.06 ----------	ON

E03 Input Function (Option) -- Side Flood Light In-Cab Enable (In Cab Input 01.08)

This circuit monitors the status of the Side Flood enable circuit. There are two methods of activation for this function. In-Cab Switch Enable and In-Cab Switch or Reverse Enable depending on the option selected with the handheld.

Function Logic

Input Device	Status	I/O Address	Status
Side Flood Enable Circuit	---------Activated	-----01.08 ----------	ON

4.06: Optional In-Cab Output Functions

There are no Optional In-Cab Output Functions for this unit.

4.07: Optional Body Input Functions

There are no Optional Body Input Functions for this unit.

4.08: Optional Body Output Functions

H01 Output Function (Option) -- Rear Strobe Light In-Cab Enable (Body Output 10.07)

This circuit operates the Rear Strobe light circuit.

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. Rear Strobe Enable Circuit	Activated	01.00	ON
B. or Hydraulic Pump	Enabled	01.10	ON (momentary)

Note: The Rear Strobe circuit will be enabled with either Condition (A) or Condition (A) or (B) depending on the option selected with the handheld.

H02 Output Function (Option) -- Left Hand Side Flood Light (Body Output 11.02)

This circuit operates the Left Hand Side Flood light circuit.

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. Side Flood Enable Circuit	Activated	01.08	ON

Note: The Left Hand Side Flood Light circuit will be enabled with either Condition (A).

H03 Output Function (Option) -- Right Hand Side Flood Light (Body Output 11.02)

This circuit operates the Right Hand Side Flood light circuit.

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. Side Flood Enable Circuit	Activated	01.08	ON

Note: The Right Hand Side Flood Light circuit will be enabled with either Condition (A).

H04 Output Function (Option) -- Front Strobe Light (Body Output 11.07)

This circuit operates the Front Strobe light circuit.

Conditions Necessary to activate the circuit

Function or Component	Status	I/O Address	Status
A. Rear Strobe Enable Circuit	Activated	01.00	ON
B. or Hydraulic Pump	Enabled	01.10	ON (momentary)

Note: The Front Strobe circuit will be enabled with either Condition (A) or Condition (A) or (B) depending on the option selected with the handheld.

Section 5: Special Features

5.01: Select-O-Pack

Select-O-Pack is a standard feature on all PLC controlled Automated side loader products. This feature automatically cycles the Auto-Pack after a predetermined number of lift cycles.

Select-O-Pack Adjustment:

1. Turn the System Power Off
2. Press and hold the Retract Button for 5 seconds *(The beeper will begin to sound at 5 seconds)*
3. Each additional activation of the Retract Button will allow one additional lift cycle before automatically packing the load. With no further activation of the of the Retract Button performed the Select-O-Pack function will be disabled.
4. Turn the System Power "ON" to store the setting into memory.

5.02: Auto/Manual Pack Mode

Auto/Manual Pack Mode is a standard feature on all PLC controlled products. While in Auto Mode the packer will complete its cycle automatically with a momentary activation of the packer extend push button. While in manual mode it will be necessary to hold the packer extend or retract buttons in order to keep the packer cycling.

Also while in manual mode all control interlocks will be disabled. This is only intended for special occasions when an operator needs to bypass the control interlocks.

To toggle the control between Auto and Manual modes press and hold the Packer Extend and Retract buttons simultaneously until the in cab alarm stops sounding.

Section 6: Diagnostics

6.01: Testing I/O Voltage

To test the voltage at an input or output terminal a Digital Multi Meter is always the best tool. Incandescent test lights cannot be used to test inputs from certain electronic input devices, the amperage required to light and incandescent tester may exceed the maximum output of the device. If using a test light it must be an LED type tester. Upon inspection of the PLC assembly, note that there are through holes in the upper circuit boards. These holes provide test probe access to the lower I/O terminals.

6.02: Monitoring Input Status

Input status can be determined by the state of the LED indicators located on the face of the PLC or with the Diagnostic Link. When in the Input Status section of the Diagnostic Link menu each inputs status can be displayed. Reference document 109-0245.xls for the diagnostic link menu structure.

6.03: Monitoring Output Status

Output status can be determined by the state of the LED indicators located on the face of the PLC or with the Diagnostic Link. When in the Output Status section of the Diagnostic Link menu each outputs status can be displayed. Reference document 109-0245.xls for the diagnostic link menu structure.

6.04: Testing Output Circuits

The Output Status section of the Diagnostic Link menu contains a Test Outputs screen. With this screen displayed pressing the F6 button will interrupt the normal program and set the PLC in output test mode. While in output test mode the green LED on the diagnostic link will turn off and the red LED will turn on. Output test mode will allow the user to scroll through the list of outputs and toggle each output on and off by pressing the F6 button. To exit output test mode return to the Test Outputs screen and press the F6 button or cycle the ignition switch.

6.05: Diagnostic Beep Codes

Each Diagnostic code consists of a two-digit number. When a fault has been set the In-Cab Alarm will sound for 5 seconds, then pause. Then beep a number of times specifying the first digit of the code, pause for 2 seconds. Then resume to beep a number of times specifying the second digit of the code. Fault information can also be accessed through the Diagnostic Link. Reference document 109-0245.xls for the diagnostic link menu structure.

There are two classes of faults the first is a system fault. A system fault indicates a possible electrical problem with some part of a specific circuit. The second is a Critical Fault. A critical fault indicates that a problem is occurring which, has or will shut the hydraulic pump system down.

6.06: Critical Faults

- **Fault #32- Filter Bypass Shutdown (standard equipment)**

The hydraulic system has been operating in bypass condition in excess of the number of hours set by the Start Filter Shutdown parameter.

Indications: The hydraulic filter needs servicing

Disabled Functions: Hydraulic Pump

Fault Reset: Cycling the System Power Switch will allow three minutes of further operation or service hydraulic filter

- **Fault #41- Engine Speed Not Detected (standard equipment)**

The PLC is unable to correctly count the R stator pulse.

Indication:
A. Intermittent connection in the R Stator input circuit.
B. Invalid R Stator Signal due to a faulty alternator output.
C. The ignition switch has been left in the run position with the engine shutdown.

Disabled Functions: Hydraulic Pump

Fault Reset: Self reset upon restoration of the R Stator circuit.

- **Fault #42- Loss of Engine Idle Calibration (standard equipment)**

The Engine Idle parameter has been erased from memory.

Indication:
A. Engine Idle needs to be calibrated.
B. Internal data storage device has malfunction. Replace PLC

Disabled Functions: Hydraulic Pump

Fault Reset: Cycling the System Power Switch will allow three minutes of further operation or complete the engine speed calibration procedure.

- **Fault #43- Loss of Engine Tach. Calibration (standard equipment)**

The Tach. Hz./2 at Engine Idle has been erased from PLC memory.

Indication:
A. Engine speed needs to be calibrated.
B. Internal data storage device has malfunction. Replace PLC

Disabled Functions: Hydraulic Pump

Fault Reset: Cycling the System Power Switch will allow three minutes of further operation or complete the engine speed calibration procedure.

6.07: System Faults

- **Fault #53- Packer Proximity Switch Fault (standard equipment)**

The PLC has received a signal from both packer proximity switches at the same time.

Indication:
A. Invalid activation of one or both proximity switches.
B. One or both input circuits are shorted to ground.
C. One or both proximity switches are out of adjustment.

Disabled Functions: None

Fault Reset: N/A

- **Fault #54- Filter Bypass Switch Fault (standard equipment)**

The PLC has lost the signal from the filter pressure switch while neither hydraulic pump was in operation. This is recognized as a fault because there should be no hydraulic pressure to bypass the filter under this condition.

Indication:
A. The filter bypass pressure switch has been disconnected.
B. An open has occurred in the filter bypass input circuit.
C. The filter pressure switch has failed open.

Disabled Functions: None

Fault Reset: Cycle System Power Switch or Restore filter pressure switch input to PLC

Note: This fault is applicable on dry valve pump systems only.

- **Fault #55- Packer Pressure Switch Fault (standard equipment)**

The PLC has lost the signal from the packer pressure switch while the packer extend function was not in operation. This is recognized as a fault because there should be no hydraulic pressure to packer extend circuit under this condition.

Indication:
A. The packer pressure switch has been disconnected
B. An open in the packer pressure switch circuit
C. The packer pressure switch has failed open.

Disabled Functions: None

Fault Reset: N/A

40 I/O PLC - OIN - WASTE MANAGEMENT



SERVICE MANUAL

SECTION 9
Body Controller Software Program 109-0226

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SMS9-BCS-SWS-706248-0110

Customer Support

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Contact Customer Support for more information.

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SERVICE MANUAL

SECTION 10 SCHEMATICS

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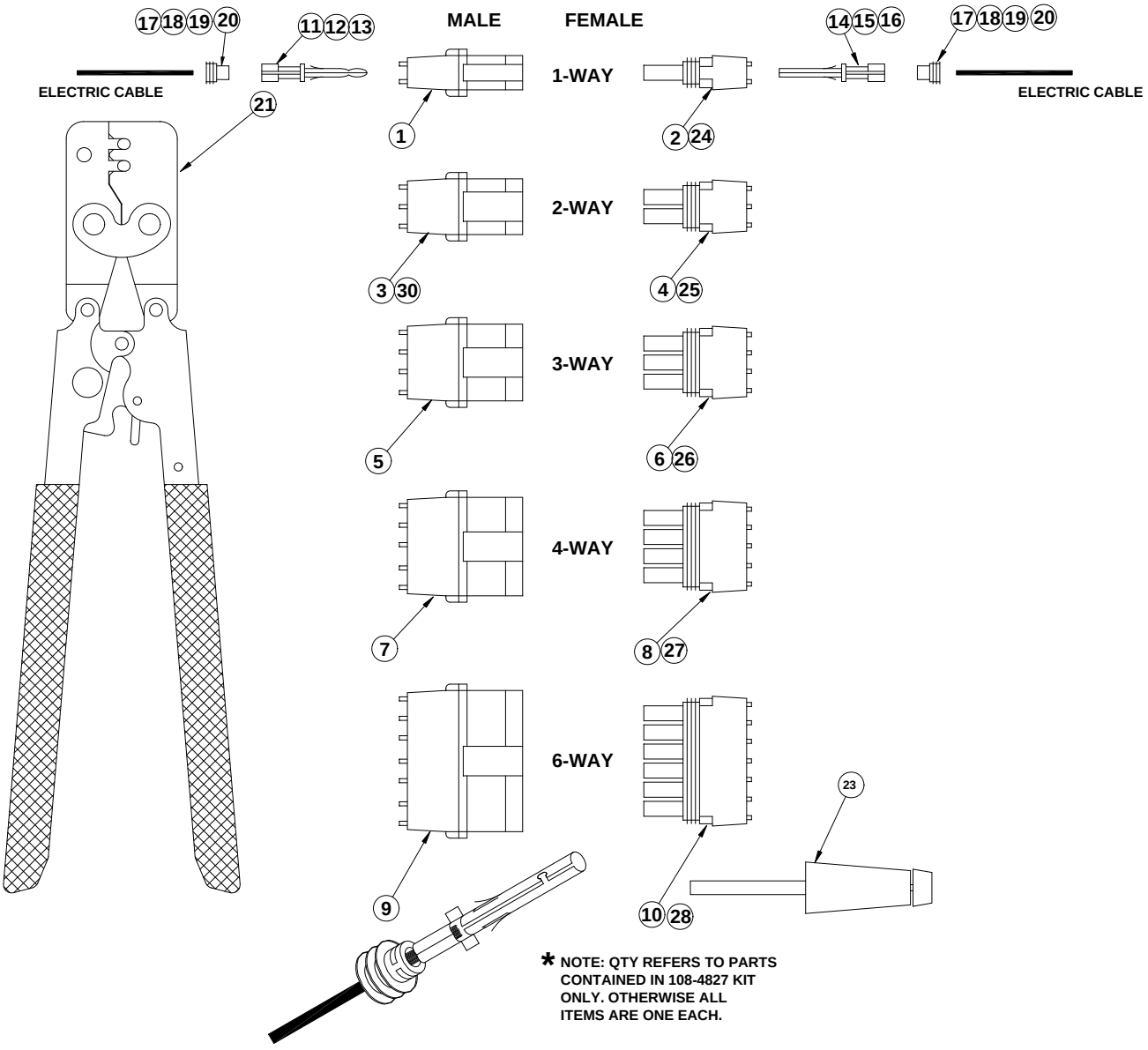
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PACKARD CONNECTION KIT - 108-4827



* NOTE: QTY REFERS TO PARTS CONTAINED IN 108-4827 KIT ONLY. OTHERWISE ALL ITEMS ARE ONE EACH.

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PACKARD CONNECTION KIT - 108-4827

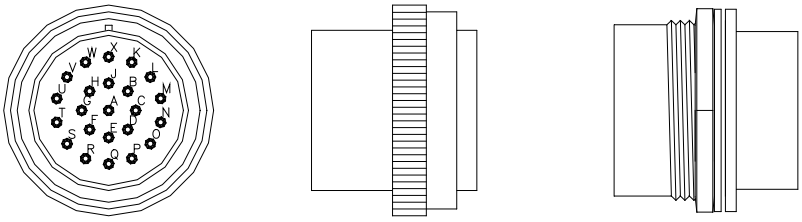
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-4827	KIT, Packard connection	-	REF
1	108-4827-001	CONNECTION, 1-Way Male	-	20
2	108-4827-002	CONNECTION, 1-Way Female	-	20
3	108-4827-003	CONNECTION, 2-Way Male	-	20
4	108-4827-004	CONNECTION, 2-Way Female	-	20
5	108-4827-005	CONNECTION, 3-Way Male	-	20
6	108-4827-006	CONNECTION, 3-Way Female	-	20
7	108-4827-007	CONNECTION, 4-Way Male	-	20
8	108-4827-008	CONNECTION, 4-Way Female	-	20
9	108-4827-009	CONNECTION, 6-Way Male	-	20
10	108-4827-010	CONNECTION, 6-Way Female	-	20
11	108-4827-110	TERMINAL, Male (18-20 AWG)	-	60
12	108-4827-111	TERMINAL, Male (16-14 AWG)	-	200
13	108-4827-112	TERMINAL, Male (10-12 AWG)	-	60
14	108-4827-120	TERMINAL, Female (18-20 AWG)	-	60
15	108-4827-121	TERMINAL, Female (16-14 AWG)	-	200
16	108-4827-122	TERMINAL, Female (10-12 AWG)	-	60
17	108-4827-130	SEAL, Cable – (20 GA)	-	20
18	108-4827-131	SEAL, Cable – (18 GA)	-	100
19	108-4827-132	SEAL, Cable – (16-14 GA)	-	400
20	108-4827-133	SEAL, Cable – (12 GA)	-	100
21	108-4827-134	PLUG, Cavity	-	20
22	108-4828-001	TOOL, Installation	-	1
23	108-4828-002	TOOL, Removal	-	1
24	108-4827-014	SEAL, 1-Way Female Connection	-	A/R
25	108-4827-015	SEAL, 2-Way Female Connection	-	A/R
26	108-4827-016	SEAL, 3-Way Female Connection	-	A/R
27	108-4827-017	SEAL, 4-Way Female Connection	-	A/R
28	108-4827-018	SEAL, 6-Way Female Connection	-	A/R
29	108-4827-200	GREASE, Trucklite, NYK	-	A/R
30	108-4827-010	CONNECTION, 2-Way Male	-	A/R

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SCHEMATICS

CONNECTORS, PLUGS, PINS AND ACCESSORIES FOR DEUTSCH ELECTRICAL PARTS - 108-4815



PINS AND SOCKETS

108-4815-101	PIN (6 GA)
108-4815-102	SOCKET (6 GA)
108-4815-103	SEALING PLUG (6 GA)
108-4815-104	PIN (8-10 GA)
108-4815-105	SOCKET (8-10 GA)
108-4815-106	SEALING PLUG (8-10 GA)
108-4815-107	PIN (12-14 GA)
108-4815-108	SOCKET (12-14 GA)
108-6461-100	SEALING PLUG (12-14 GA)
108-4815-110	PIN (16-18 GA)
108-4515-111	SOCKET (16-18 GA)
108-6461-100	SEALING PLUG (16-18 GA)
108-4815-112	PIN (20-24 GA)
108-4815-113	SOCKET (20-24 GA)
108-4815-114	SEALING PLUG (20-24 GA)

GOLD PINS & SOCKETS

108-4815-120	PIN (12-14 GA)
108-4815-121	SOCKET (12-14 GA)
108-4815-124	PIN (14-16 GA)
108-4815-125	SOCKET (14-16 GA)
108-4815-122	PIN (16-18 GA)
108-4815-123	SOCKET (16-18 GA)
108-4815-126	PIN (20-24 GA)
108-4815-127	SOCKET (20-24 GA)

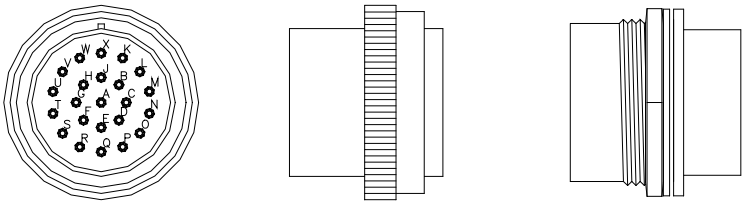
METAL CONNECTOR SHELLS

108-4815-001	21 (Pin) RECEPTACLE
108-4515-002	21 (Socket) PLUG
108-4815-003	31 (Pin) RECEPTACLE
108-4815-004	31 (Socket) PLUG
108-4815-005	23 (Pin) RECEPTACLE
108-4815-006	23 (Socket) PLUG
108-4815-007	16 (Pin) RECEPTACLE
108-4815-008	16 (Socket) PLUG
108-4815-009	14 (Pin) RECEPTACLE (16 GA)
108-4515-010	14 (Socket) PLUG (16 GA)
108-4815-015	35 (Pin) RECEPTACLE (3-16 GA, 32-20 GA)
108-4815-016	35 (Socket) PLUG (3-16 GA, 32-20 GA)
108-4815-017	8 (Pin) RECEPTACLE (12 GA)
108-4815-018	8 (Socket) PLUG (12 GA)

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SCHEMATICS



PLASTIC CONNECTOR SHELLS

108-4815-020	21-PIN RECEPTACLE
108-4815-021	21-PIN SOCKET
108-4815-022	19-PIN RECEPTACLE
108-4815-023	19-PIN SOCKET
108-4815-024	23-PIN RECEPTACLE
108-4815-025	23-PIN SOCKET
108-4815-030	31 PIN RECEPTACLE
108-4815-031	31 SOCKET PLUG
108-4815-032	16 PIN PLUG
108-4815-033	16 SOCKET RECEPTACLE
108-4815-034	16 PIN RECEPTACLE
108-4815-035	16 SOCKET RECEPTACLE
108-4815-036	16 PIN RECEPTACLE
108-4815-037	29 PIN RECEPTACLE
108-4815-038	9 SOCKET RECEPTACLE
108-4815-067	23 SOCKET PLUG WITH RING ADAPTOR
108-4815-068	29 SOCKET PLUG WITH RING ADAPTOR
108-4815-069	9 SOCKET PLUG WITH RING ADAPTOR
108-4815-070	8 PIN RECEPTACLE (12-16)
108-4815-071	8 PIN PLUG (12-16)
108-4815-182	21 PIN RECEPTACLE
108-4815-183	21 SOCKET PLUG
108-4815-184	19 PIN RECEPTACLE
108-4815-185	19 PIN PLUG

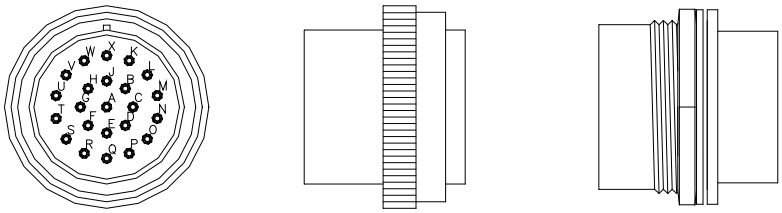
ACCESSORIES

108-4815-150	PANEL NUT, 24 SHELL
108-4815-151	LOCKWASHER, 24 SHELL
108-4815-152	STRAIN RELIEF STRAIGHT 24
108-4815-153	STRAIN RELIEF 90° 24
108-4815-154	PANEL NUT, 18 SHELL
108-4815-155	LOCKWASHER, 18 SHELL
108-4815-156	STRAIN RELIEF STRAIGHT 18
108-4815-157	STRAIN RELIEF 90° 18
108-4815-158	REMOVAL TOOL (6 GA)
108-4815-159	REMOVAL TOOL (8-10 GA)
108-4815-160	REMOVAL TOOL (12-14 GA)
108-4815-161	REMOVAL TOOL (16-18 GA)
108-4815-162	REMOVAL TOOL (20-24 GA)
108-4815-163	CRIMP TOOL (12-24 GA)
108-4815-164	CRIMP TOOL (6-10 GA)
108-4815-165	RECEPTACLE CAP. 18 PIN
108-4815-166	RECEPTACLE CAP, 24 PIN
108-4815-167	PLUG CAP, 18 PIN
108-4815-168	PLUG CAP, 24 PIN

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ACCESSORIES - Continued

108-4815-169	****
108-4815-170	DT SCREWDRIVER TOOL
108-4815-180	PANEL NUT, 18 SHELL
108-4815-181	LOCKWASHER, 18 SHELL
108-4815-186	BACKSHELL, 90º, 24 SHELL
108-4815-187	BACKSHELL, STRAIGHT, 24
108-4815-188	LG COMPRESSION BACKSHELL
108-4815-189	LG COMPRESSION NUT
108-4815-190	SM COMPRESSION BACKSHELL
108-4815-191	SM COMPRESSIONS NUT

METAL CONNECTOR SHELLS

108-4815-001	21 (PIN) RECEPTACLE
108-4515-002	21 (SOCKET) PLUG
108-4815-003	31 (PIN) RECEPTACLE
108-4815-004	31 (SOCKET) PLUG
108-4815-005	23 (PIN) RECEPTACLE
108-4815-006	23 (SOCKET) PLUG
108-4815-007	16 (PIN) RECEPTACLE
108-4815-008	16 (SOCKET) PLUG
108-4815-009	14 (PIN) RECEPTACLE (16 GA)
108-4515-010	14 (SOCKET) PLUG (16 GA)
108-4815-015	35 (PIN) RECEPTACLE (3-16 GA, 32-20 GA)
108-4815-016	35 (SOCKET) PLUG (3-16 GA, 32-20 GA)
108-4815-017	8 (PIN) RECEPTACLE (12 GA)
108-4815-018	8 (SOCKET) PLUG (12 GA)

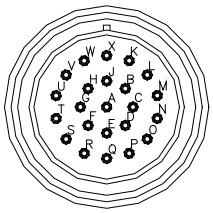
METAL CONNECTOR KITS WITH NORMAL WIRE SEALS (GREEN RING)

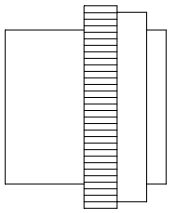
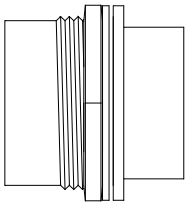
108-4815-011	14 PIN RECEPTACLE KIT (16 GA)
108-4815-012	14 SOCKET PLUG KIT (16 GA)
108-4815-013	14 PIN RECEPTACLE WITH STRAIN KIT (16 GA)
108-4815-014	14 SOCKET PLUG WITH STRAIN KIT (16 GA)
108-4815-052	35 PIN RECEPTACLE (16/20) KIT
108-4815-053	35 SOCKET PLUG (16/20) KIT
108-4815-054	35 PIN RECEPTACLE (16/20) WITH STRAIN KIT
108-4815-055	35 SOCKET PLUG (16/20) WITH STRAIN KIT
108-4815-056	21 PIN RECEPTACLE (12/16) KIT
108-4815-057	21 SOCKET PLUG (12/16) KIT
108-4815-058	21 PIN RECEPTACLE (12/16) WITH STRAIN KIT
108-4815-059	21 SOCKET PLUG (12/16 GA) WITH STRAIN KIT
108-4815-064	9 PIN RECEPTACLE KIT (4/8/12 GA)
108-4815-065	9 SOCKET PLUG KIT (4/8/12 GA)
108-4815-066	9 PIN RECEPTACLE WITH STRAIN KIT (4/8/12 GA)

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METAL CONNECTOR KITS WITH EXTRA THIN WIRE SEALS (BLUE RING)

108-4815-60	31 PIN RECEPTACLE (16) KIT
108-4815-61	31 SOCKET PLUG (16) KIT
108-4815-62	31 PIN RECEPTACLE (16) WITH STRAIN KIT
108-4815-63	31 SOCKET PLUG (16 WITH STRAIN KIT

METAL CONNECTOR KITS WITH EXTRA THIN WALL WIRE SEALS (BLUE RING)

108-4815-040	21 PIN RECEPTACLE (12/16) KIT
108-4815-041	21 SOCKET PLUG (12/16 GA) KIT
108-4815-042	21 PIN RECEPTACLE 12/16) WITH STRAIN KIT
108-4815-043	21 SOCKET PLUG (12/16 GA) WITH STRAIN KIT

METAL CONNECTOR KITS WITH NORMAL WIRE SEALS (BLUE RING)

108-4815-044	23 PIN RECEPTACLE (16 GA) KIT
108-4815-045	23 SOCKET PLUG (16 GA) KIT
108-4815-046	23 PIN RECEPTACLE (16 GA) WITH STRAIN KIT
108-4815-047	23 SOCKET PLUG (16 GA) WITH STRAIN KIT
108-4815-048	31 PIN RECEPTACLE (16) KIT
108-4815-049	31 SOCKET PLUG (16 KIT
108-4815-050	31 PIN RECEPTACLE (16) WITH STRAIN KIT
108-4815-051	31 SOCKET PLUG (16) WITH STRAIN KIT

PLASTIC CONNECTOR KITS

108-4815-026	21 PIN RECEPTACLE KIT
108-4815-027	21 SOCKET PLUG KIT
108-4815-028	9 PIN RECEPTACLE KIT (4/8/12 GA)
108-4815-029	9 PIN RECEPTACLE KIT (4/8/12 GA)

KIT 108-4815 IS COMPRISED OF THE FOLLOWING:

- 108-4815-021
- 108-4815-121
- 108-4815-124
- 108-6461-100
- 108-4815-150
- 108-4815-151

KIT 108-4815-027 IS COMPRISED OF THE FOLLOWING:

- 108-4815-021
- 108-4815-121
- 108-4815-125
- 108-6461-100

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DEUTSCH CONNECTION KIT - 108-6461-PC

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-6461-PC	KIT, Deutsch Connection	-	REF
1	108-6461-003P	PLUG, 3-Way	-	15
2	108-6461-003PW	WEDGE, 3-Way Plug	-	15
3	108-6461-003PB	BOOT, 3-Way Plug	-	15
4	108-6461-003R	RECEPTACLE, 3-Way	-	15
5	108-6461-003RW	WEDGE, 3-Way Receptacle	-	15
6	108-6461-003RB	BOOT, 3-Way Receptacle	-	15
7	108-6461-004P	PLUG, 4-Way	-	3
8	108-6461-004PW	WEDGE, 4-Way Plug	-	3
9	108-6461-004PB	BOOT, 4-Way Plug	-	3
10	108-6461-004R	RECEPTACLE, 4-Way	-	3
11	108-6461-004RW	WEDGE, 4-Way Receptacle	-	3
12	108-6461-004RB	BOOT, 4-Way Receptacle	-	3
13	108-6461-006P	PLUG, 6-Way	-	3
14	108-6461-006PW	WEDGE, 6-Way Plug	-	3
15	108-6461-006PB	BOOT, 6-Way Plug	-	3
16	108-6461-006R	RECEPTACLE, 6-Way	-	3
17	108-6461-006RW	WEDGE, 6-Way Receptacle	-	3
18	108-6461-006RB	BOOT, 6-Way Receptacle	-	3
19	108-6461-008P	PLUG, 8-Way	-	9
20	108-6461-008PW	WEDGE, 8-Way Plug	-	9
21	108-6461-008PB	BOOT, 8-Way Plug	-	9
22	108-6461-008R	RECEPTACLE, 8-Way	-	9
23	108-6461-008RW	WEDGE, 8-Way Receptacle	-	9
24	108-6461-008RB	BOOT, 8-Way Receptacle	-	9
25	108-6461-012P	PLUG, 12-Way	-	3
26	108-6461-CPW	WEDGE, 12-Way Plug	-	3
27	108-6461-CPB	BOOT, 12-Way Boot	-	3
28	108-6461-012R	RECEPTACLE, 12-Way	-	3
29	108-6461-CRW	WEDGE, 12-Way Receptacle	-	3
30	108-6461-CRB	BOOT, 12-Way Receptacle	-	3
31	108-6461-100	PLUG, Sealing	-	25
32	108-6461-101	PIN, Gold Plated	-	200
33	108-6461-102	SOCKET, Gold Plated	-	200
34	108-6461-200	CRIMPER, Production	-	1
35	108-6461-201	CRIMPER, Field Kit	-	1
36	108-6461-202	REMOVAL TOOL	-	1

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DEUTSCH DT SERIES CONNECTOR KITS - 108-8411

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-8411	KITS, Deutsch Connector, DT Series	-	REF
1	108-8411-001	KIT, Deutsch Connector, DT Series	-	REF
-	108-8411-02R	RECEPTACLE, 2-Way	-	1
-	108-4815-120	PIN, Gold 12 AWG	-	2
-	108-8411-2RW	RECEPTACLE, 2-Way Wedge	-	1
-	108-6461-100	PLUG, Sealing	-	2
-	108-8411-2RB	BOOT, Receptacle	-	1
2	108-8411-002	KIT, Deutsch Connector, DT Series	-	REF
-	108-8411-02P	PLUG, 2-Way	-	1
-	108-4815-121	PIN, Gold 12 AWG	-	2
-	108-8411-2PW	PLUG, 2-Way Wedge	-	1
-	108-6461-100	PLUG, Sealing	-	2
-	108-8411-2RB	BOOT, Plug	-	1
3	108-8411-003	KIT, Deutsch Connector, DT Series	-	REF
-	108-8411-04R	RECEPTACLE, 4-Way	-	1
-	108-4815-120	PIN, Gold 12 AWG	-	4
-	108-8411-4RW	RECEPTACLE, 4-Way Wedge	-	1
-	108-6461-100	PLUG, Sealing	-	2
-	108-8411-4RB	BOOT, Receptacle	-	1
4	108-8411-004	KIT, Deutsch Connector, DT Series	-	REF
-	108-8411-04P	PLUG, 4-Way	-	1
-	108-4815-121	PIN, Gold 12 AWG	-	4
-	108-8411-4PW	PLUG, 4-Way Wedge	-	1
-	108-6461-100	PLUG, Sealing	-	2
-	108-8411-4PB	BOOT, Plug	-	1
5	108-8411-005	KIT, Deutsch Connector, DT Series	-	REF
-	108-8411-22R	RECEPTACLE, 2-Way Mounted	-	1
-	108-4815-120	PIN, Gold 12 AWG	-	2
-	108-8411-2RW	RECEPTACLE, 2-Way Wedge	-	1
-	108-6461-100	PLUG, Sealing	-	2
-	108-8411-2RB	BOOT, Receptacle	-	1
6	108-8411-006	KIT, Deutsch Connector, DT Series	-	REF
-	108-8411-24R	RECEPTACLE, 4-Way Mounted	-	1
-	108-4815-120	PIN, Gold 12-AWG	-	4
-	108-8411-4RW	RECEPTACLE, 4-Way Wedge	-	1
-	108-6461-100	PLUG, Sealing	-	2
-	108-8411-4RB	BOOT, Receptacle	-	1

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DEUTSCH DT SERIES CONNECTOR KITS - BOOTS - 108-6461

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-6461	KITS, Deutsch Connection, DT Series	-	REF
1	108-6461-3PB	BOOT, 3-Way Plug	-	A/R
2	108-6461-3RB	BOOT, 3-Way Receptacle	-	A/R
3	108-6461-4PB	BOOT, 4-Way Plug	-	A/R
4	108-6461-4RB	BOOT, 4-Way Receptacle	-	A/R
5	108-6461-6PB	BOOT, 6-Way Plug	-	A/R
6	108-6461-6RB	BOOT, 6-Way Receptacle	-	A/R
7	108-6461-8PB	BOOT, 8-Way Plug	-	A/R
8	108-6461-8RB	BOOT, 8-Way Receptacle	-	A/R
9	108-6461-CPB	BOOT, 12-Way Plug	-	A/R
10	108-6461-CRB	BOOT, 12-Way Receptacle	-	A/R
11	108-6461-2PB	BOOT, 2-Way Plug	-	A/R
12	108-6461-2RB	BOOT, 2-Way Receptacle	-	A/R

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DEUTSCH DT SERIES CONNECTOR KITS - STRAIGHT - 108-6461

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-6461	KITS, Deutsch Connection, DT Series	-	REF
1	108-6461-001	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-03P	PLUG, 3-Way	-	1
-	108-6461-3PW	PLUG, 3-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	3
-	108-6461-100	PLUG, Sealing	-	2
-	108-6461-027	PLUG, 3-Way Straight Backshell	-	1
2	108-6461-002	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-03R	RECEPTACLE, 3-Way	-	1
-	108-6461-3RW	RECEPTACLE, 3-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	3
-	108-6461-100	PLUG, Sealing	-	2
-	108-6461-015	RECEPTACLE, 3-Way Straight Backshell	-	1
3	108-6461-003	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-04P	PLUG, 4-Way	-	1
-	108-6461-4PW	PLUG, 4-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	4
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-029	PLUG, 4-Way Straight Backshell	-	1
4	108-6461-004	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-04R	RECEPTACLE, 4-Way	-	1
-	108-6461-4RW	RECEPTACLE, 4-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	4
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-017	RECEPTACLE, 4-Way Straight Backshell	-	1
5	108-6461-005	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-06P	PLUG, 6-Way	-	1
-	108-6461-6PW	PLUG, 6-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	6
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-031	PLUG, 6-Way Straight Backshell	-	1
6	108-6461-006	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-06R	RECEPTACLE, 6-Way	-	1
-	108-6461-6RW	RECEPTACLE, 6-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	6
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-019	RECEPTACLE, 6-Way Straight Backshell	-	1
7	108-6461-007	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-08P	PLUG, 8-Way	-	1
-	108-6461-08PW	PLUG, 8-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	8
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-033	PLUG, 8-Way Straight Backshell	-	1

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DEUTSCH DT SERIES CONNECTOR KITS - STRAIGHT - 108-6461 – CONTINUED

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-6461	KITS, Deutsch Connection, DT Series	-	REF
8	108-6461-008	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-08R	RECEPTACLE, 8-Way	-	1
-	108-6461-8RW	RECEPTACLE, 8-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	8
-	108-6461-100	PLUG, sealing	-	1
-	108-6461-021	RECEPTACLE, 8-Way Straight Backshell	-	1
9	108-6461-009	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-12P	PLUG, 12-Way	-	1
-	108-6461-CPW	PLUG, 12-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	12
-	108-6461-100	PLUG, Sealing	-	3
-	108-6461-035	PLUG, 12-Way Straight Backshell	-	1
10	108-6461-010	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-12R	RECEPTACLE, 12-Way	-	1
-	108-6461-CRW	RECEPTACLE, 12-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	12
-	108-6461-100	PLUG, Sealing	-	3
-	108-6461-023	RECEPTACLE, 12-Way Straight Backshell	-	1
11	108-6461-011	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-02P	PLUG, 2-Way	-	1
-	108-6461-2PW	PLUG, 2-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	2
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-025	PLUG, 2-Way Straight Backshell	-	1
12	108-6461-012	KIT, Deutsch Connector, DT Series, Straight	-	REF
-	108-6461-02R	RECEPTACLE, 2-Way	-	1
-	108-6461-2RW	RECEPTACLE, 2-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	2
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-013	RECEPTACLE, 2-Way Straight Backshell	-	1
13	108-7142	KIT, 12-Way Panel Mount Receptacle	-	REF

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DEUTSCH DT SERIES CONNECTOR KITS - 90° - 108-6461

ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-6461	KITS, Deutsch Connection, DT Series	-	REF
1	108-6461-041	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-03P	PLUG, 3-Way	-	1
-	108-6461-3PW	PLUG 3-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	3
-	108-6461-100	PLUG, Sealing	-	2
-	108-6461-028	PLUG, 3-Way, 90º Backshell	-	1
2	108-6461-042	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-03R	RECEPTACLE, 3-Way	-	1
-	108-6461-3RW	RECEPTACLE, 3-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	3
-	108-6461-100	PLUG, Sealing	-	2
-	108-6461-016	RECEPTACLE, 3-Way 90º Backshell	-	1
3	108-6461-043	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-04P	PLUG, 4-Way	-	1
-	108-6461-4PW	PLUG, 4-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	4
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-030	PLUG, 4-Way 90º Backshell	-	1
4	108-6461-044	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-04R	RECEPTACLE, 4-Way	-	1
-	108-6461-4RW	RECEPTACLE, 4-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	4
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-018	RECEPTACLE, 4-Way 90º Backshell	-	1
5	108-6461-045	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-06P	PLUG, 6-Way	-	1
-	108-6461-6PW	PLUG, 6-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	6
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-032	PLUG, 6-Way 90º Backshell	-	1
6	108-6461-046	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-06R	RECEPTACLE, 6-Way	-	1
-	108-6461-6RW	RECEPTACLE, 6-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	6
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-020	RECEPTACLE, 6-way 90º Backshell	-	1
7	108-6461-047	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-08P	PLUG, 8-Way	-	1
-	108-6461-8PW	PLUG, 8-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	8
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-034	PLUG, 8-Way 90º Backshell	-	1

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DEUTSCH DT SERIES CONNECTOR KITS - 90° - 108-6461 - CONTINUED

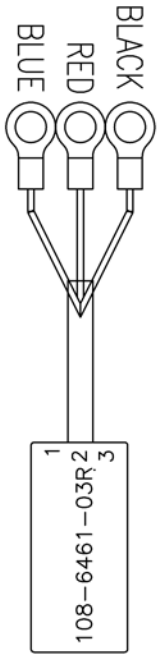
ITEM	PART NO.	DESCRIPTION	EFF	QTY
-	108-6461	KITS, Deutsch Connection, DT Series	-	REF
8	108-6461-048	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-08R	RECEPTACLE, 8-Way	-	1
-	108-6461-8RW	RECEPTACLE, 8-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	8
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-022	RECEPTACLE, 8-Way 90º Backshell	-	1
9	108-6461-049	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-12P	PLUG, 12-Way	-	1
-	108-6461-CPW	PLUG, 12-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	12
-	108-6461-100	PLUG, Sealing	-	3
-	108-6461-036	PLUG, 12-Way 90º Backshell	-	1
10	108-6461-050	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-12R	RECEPTACLE, 12-Way	-	1
-	108-6461-CRW	RECEPTACLE, 12-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	12
-	108-6461-100	PLUG, Sealing	-	3
-	108-6461-024	RECEPTACLE, 12-Way 90º Backshell	-	1
11	108-6461-051	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-02P	PLUG, 2-Way	-	1
-	108-6461-2PW	PLUG, 2-Way Wedge	-	1
-	108-6461-102	SOCKET, Gold Plated	-	2
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-026	PLUG, 2-Way 90º Backshell	-	1
12	108-6461-052	KIT, Deutsch Connector, DT Series, 90º	-	REF
-	108-6461-02R	RECEPTACLE, 2-Way	-	1
-	108-6461-2RW	RECEPTACLE, 2-Way Wedge	-	1
-	108-6461-101	PIN, Gold Plated	-	2
-	108-6461-100	PLUG, Sealing	-	1
-	108-6461-014	RECEPTACLE, 2-Way 90º Backshell	-	1

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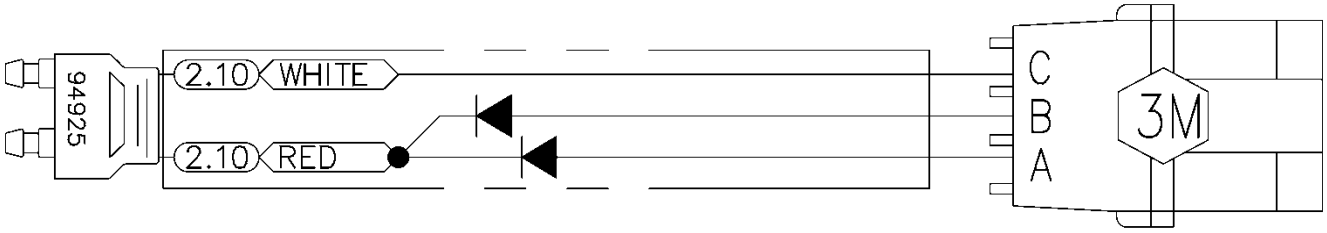
Recycle 2000™

SCHEMATICS

BODY TO RH BOX HARNESS – 263-1037-004



ALARM ADAPTER HARNESS - 263-1309-004

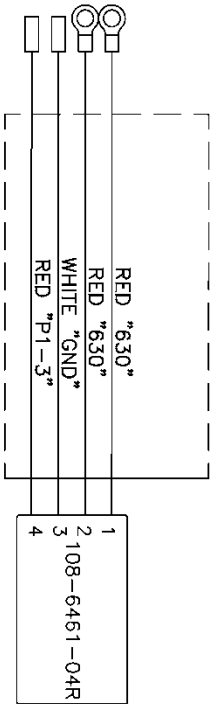


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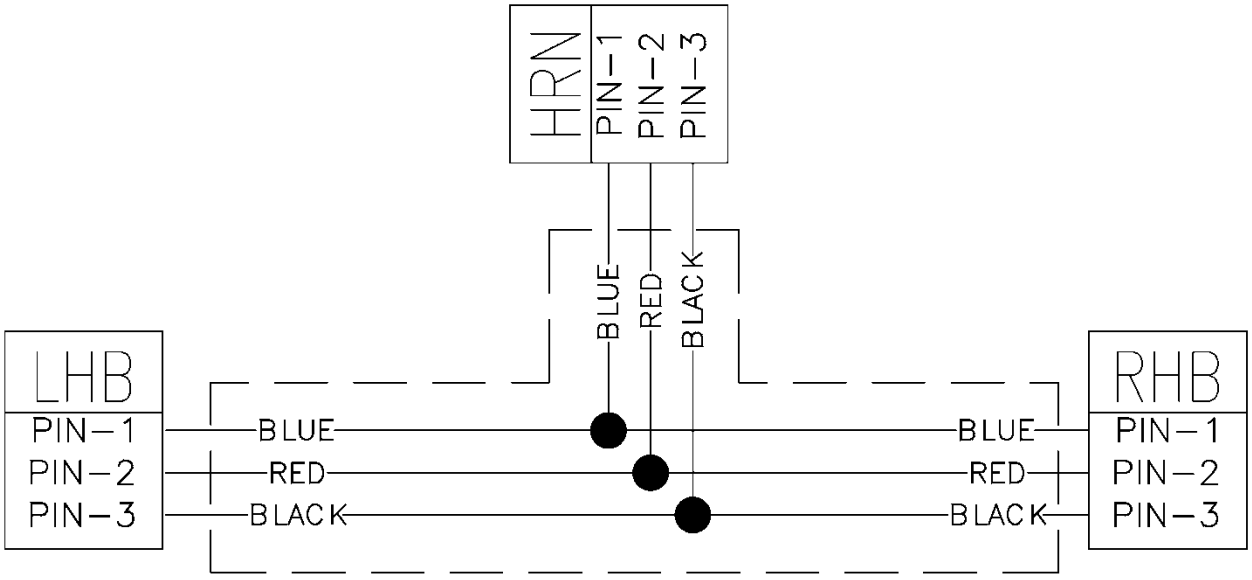
Recycle 2000™

SCHEMATICS

BUCKET CONTROL HARNESS – 263-1246-008



INPUT SPLITTER BUCKET HARNESS – 263-1246-009

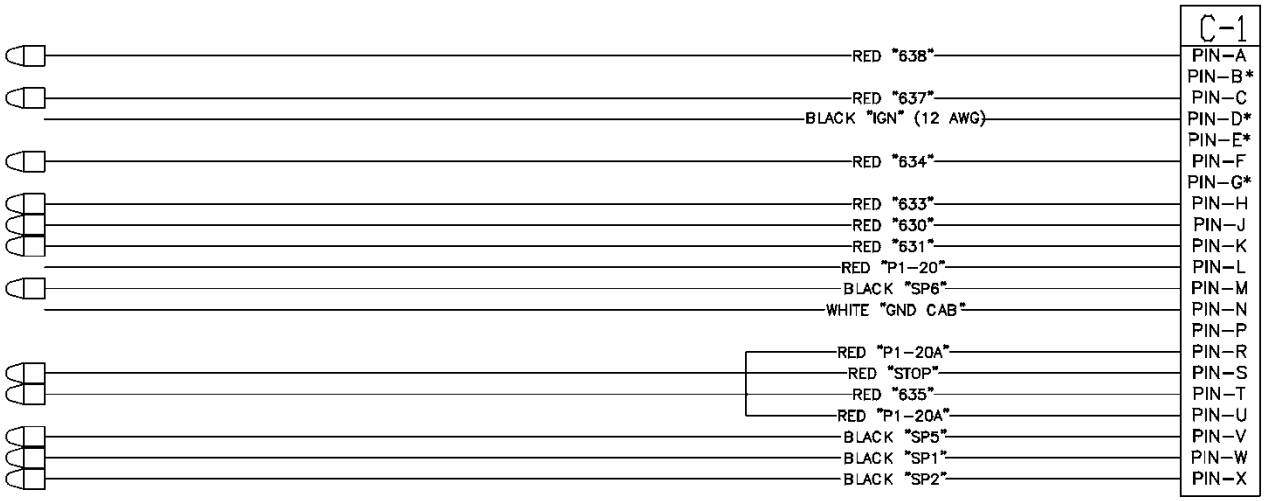


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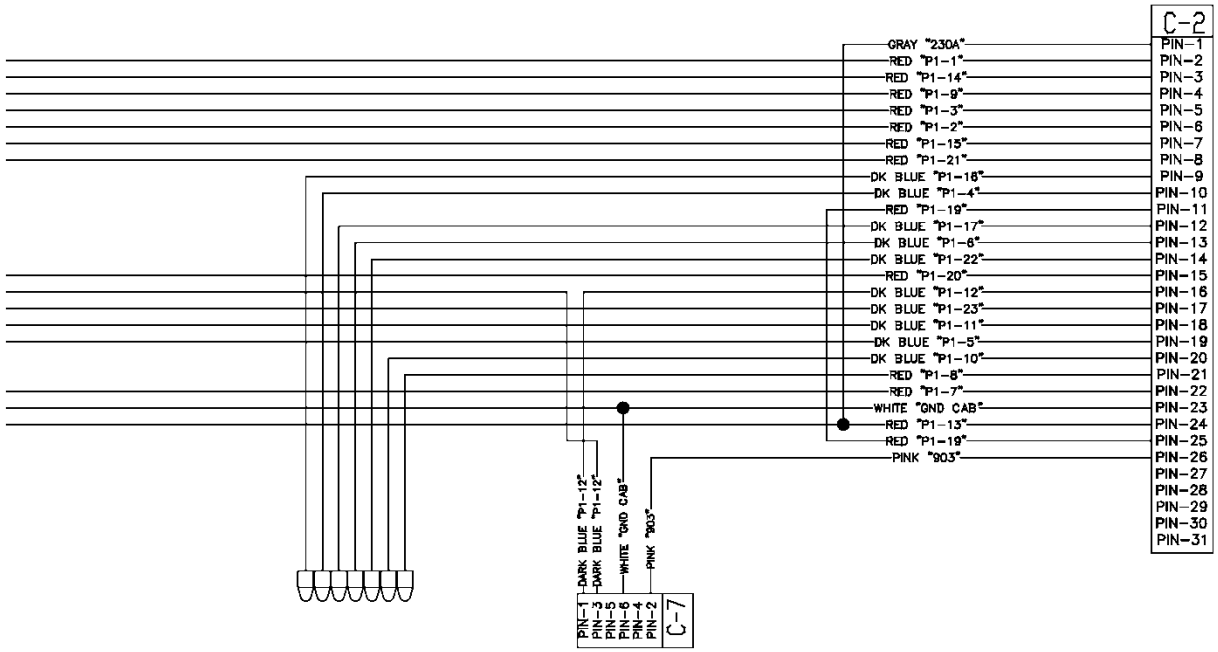
Recycle 2000™

SCHEMATICS

CONTROL BOX HARNESS – 263-1479-003



CONTROL BOX HARNESS – 263-1479-004

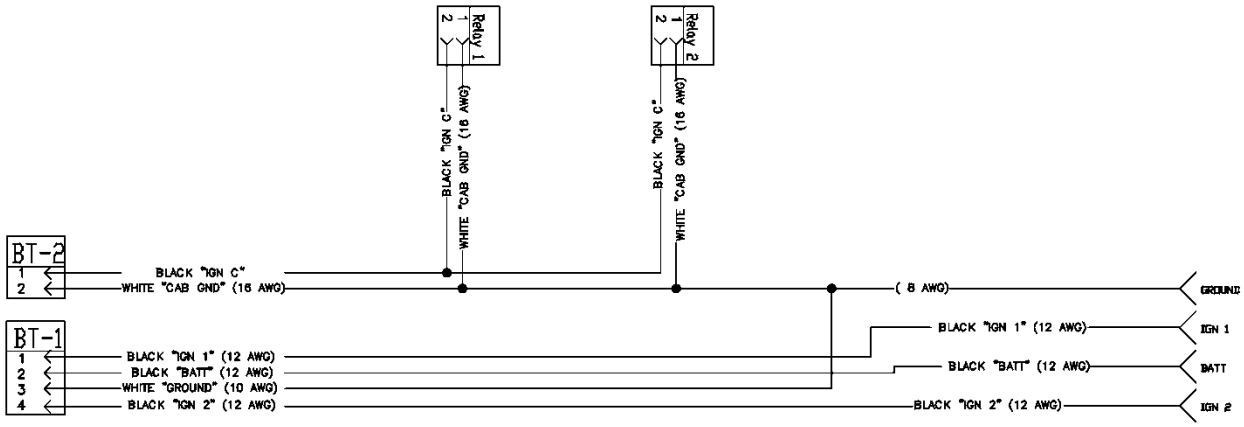


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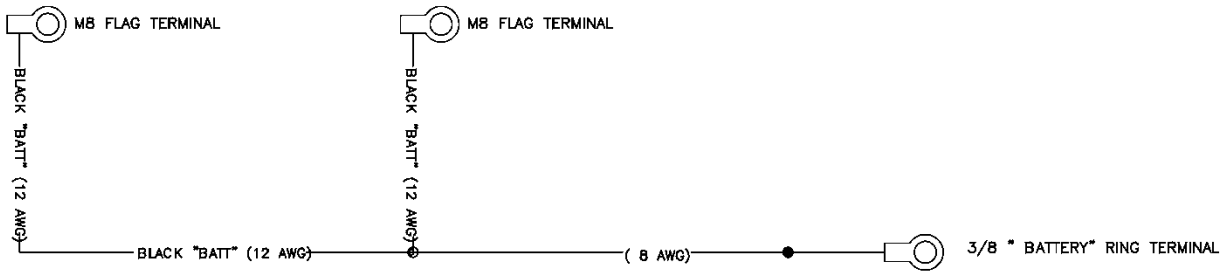
Recycle 2000™

SCHEMATICS

BATTERY BOX HARNESS – 263-1517



BATTERY HARNESS – 263-1518

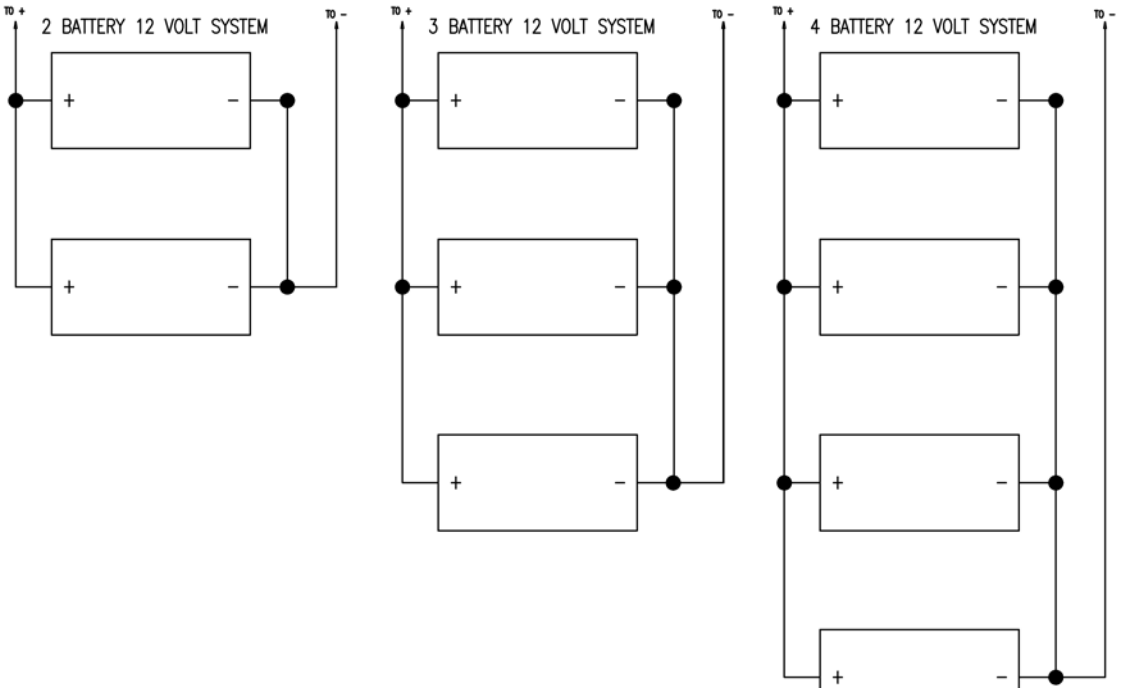


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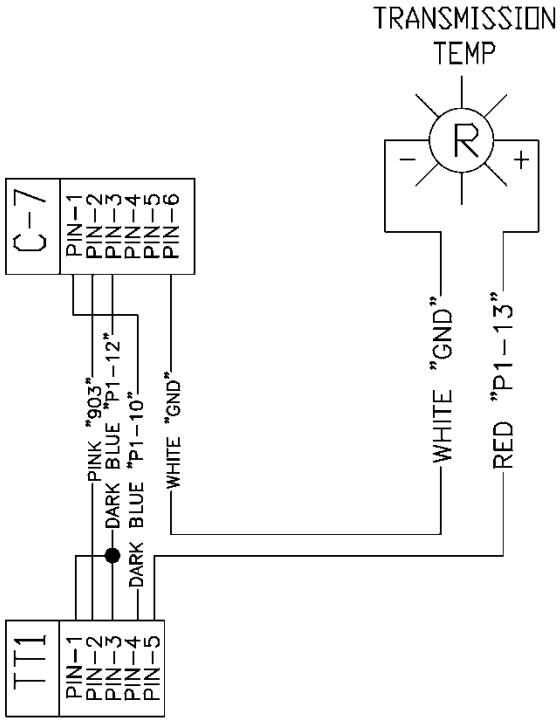
Recycle 2000™

SCHEMATICS

BATTERY CONNECTIONS SCHEMATIC – 701-8038



TEMPERATURE TRANSMISSION RELAY HARNESS – 263-1565-002

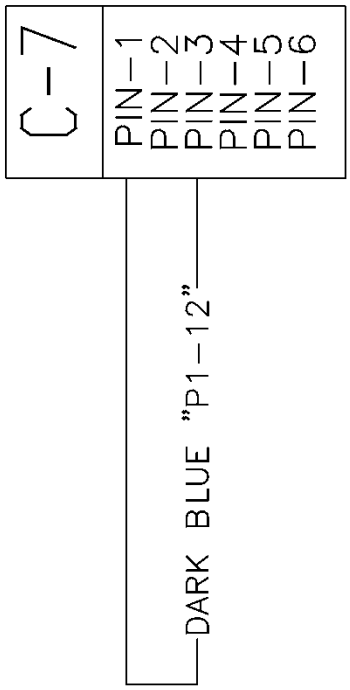


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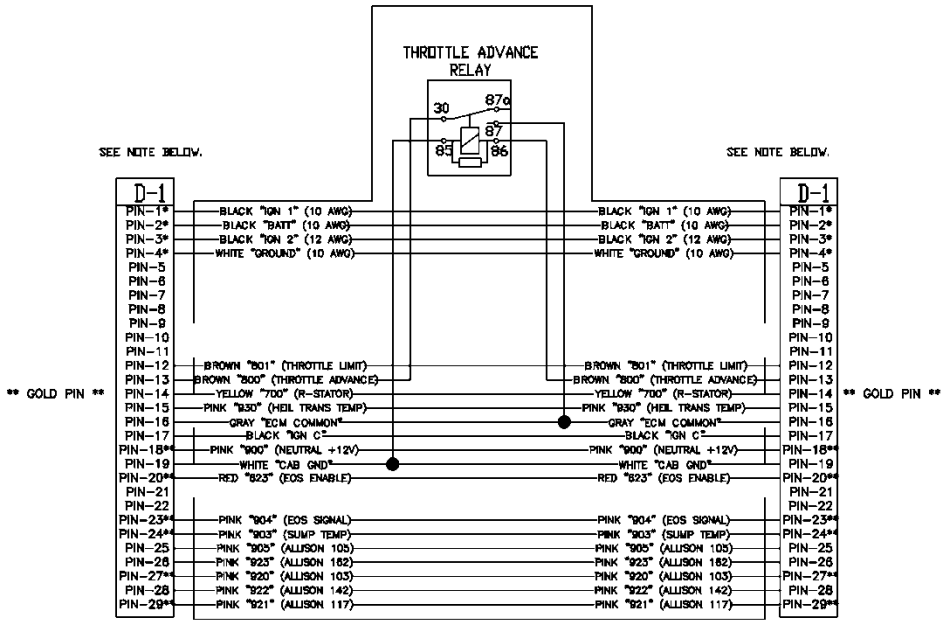
Recycle 2000™

SCHEMATICS

TEMPERATURE TRANSMISSION JUMPER HARNESS – 263-1565-003



THROTTLE ADVANCE HARNESS – 263-1593-003

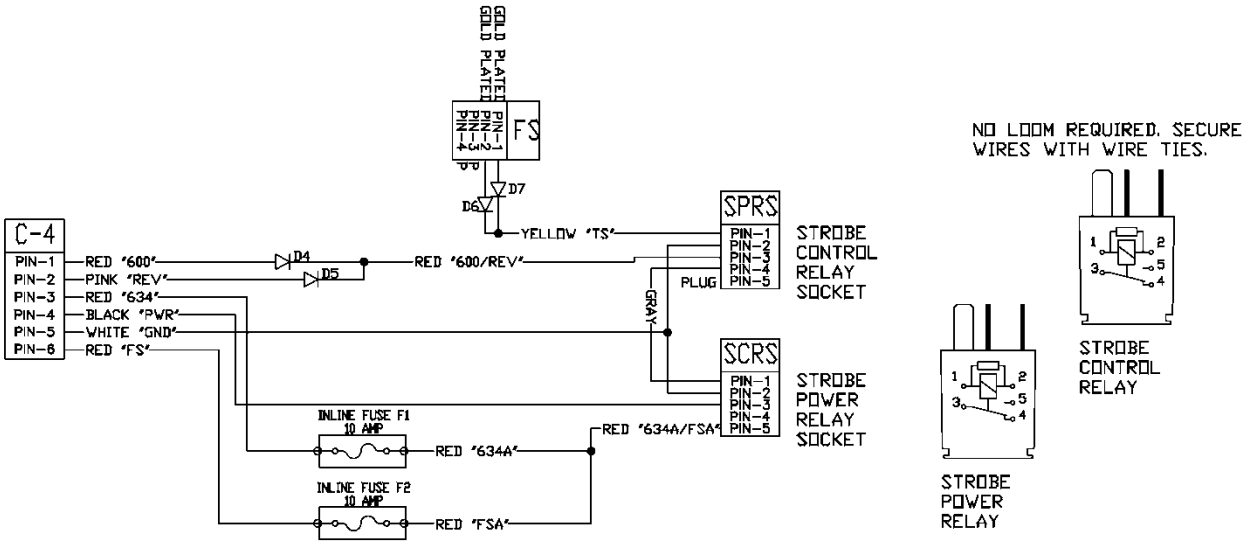


NOTE:
PIN-X = SIZE 16 DEUTSCH PIN
PIN-X* = SIZE 12 DEUTSCH PIN
PIN-X** = SIZE 20 DEUTSCH PIN

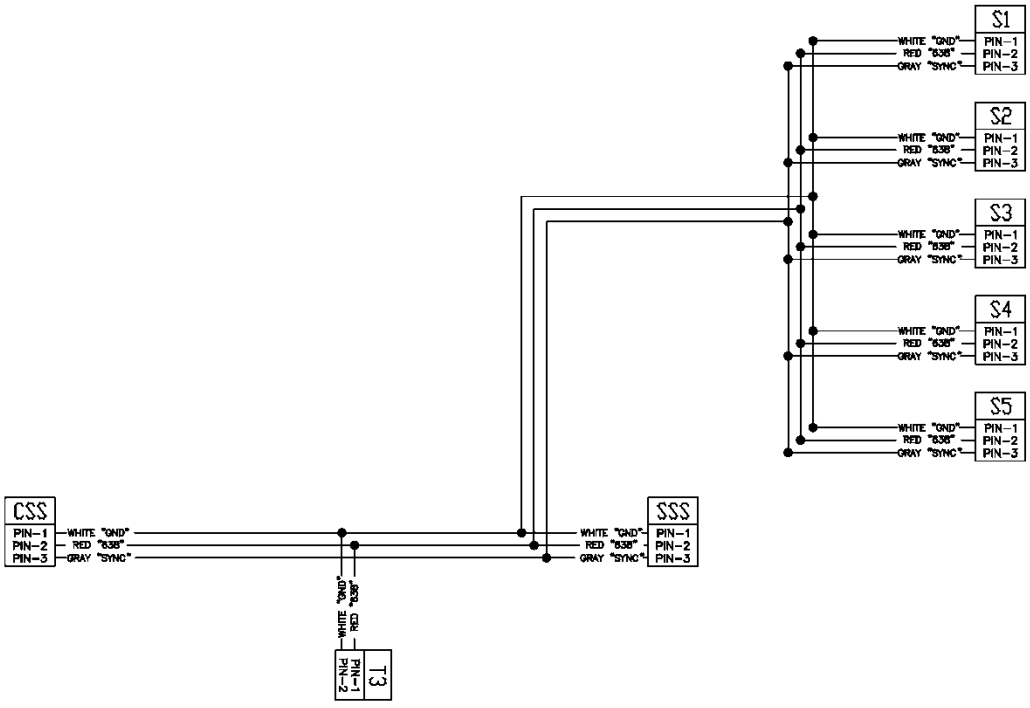
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Recycle 2000™

SCHEMATICS
STROBE LIGHT CONTROL HARNESS – 263-1635



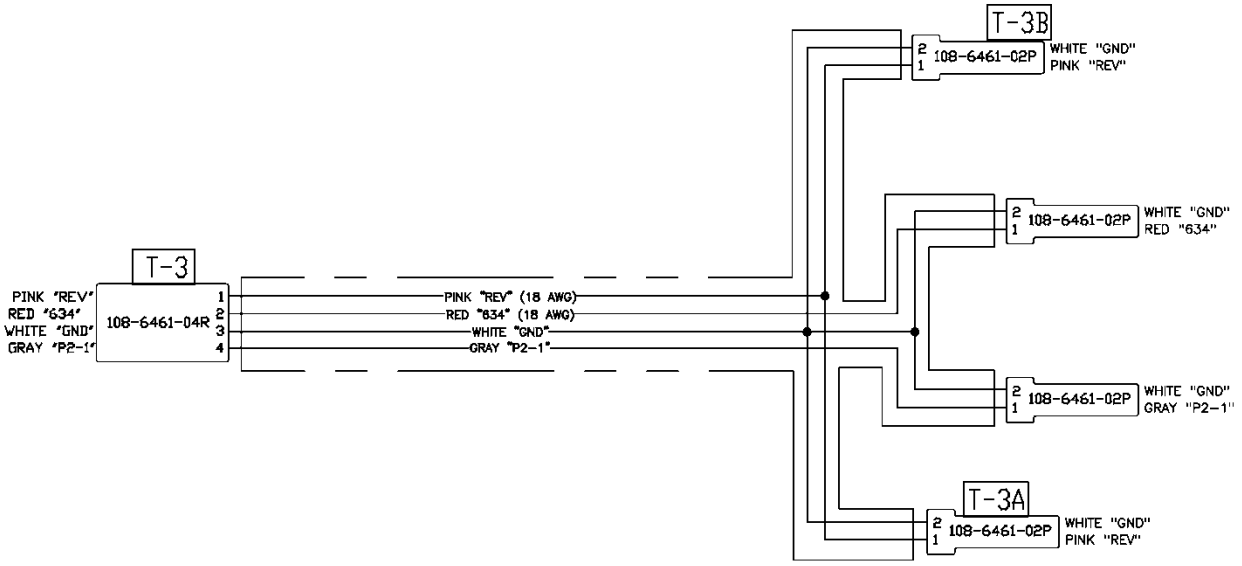
WHELEN TAILGATE HARNESS – 263-1573-009



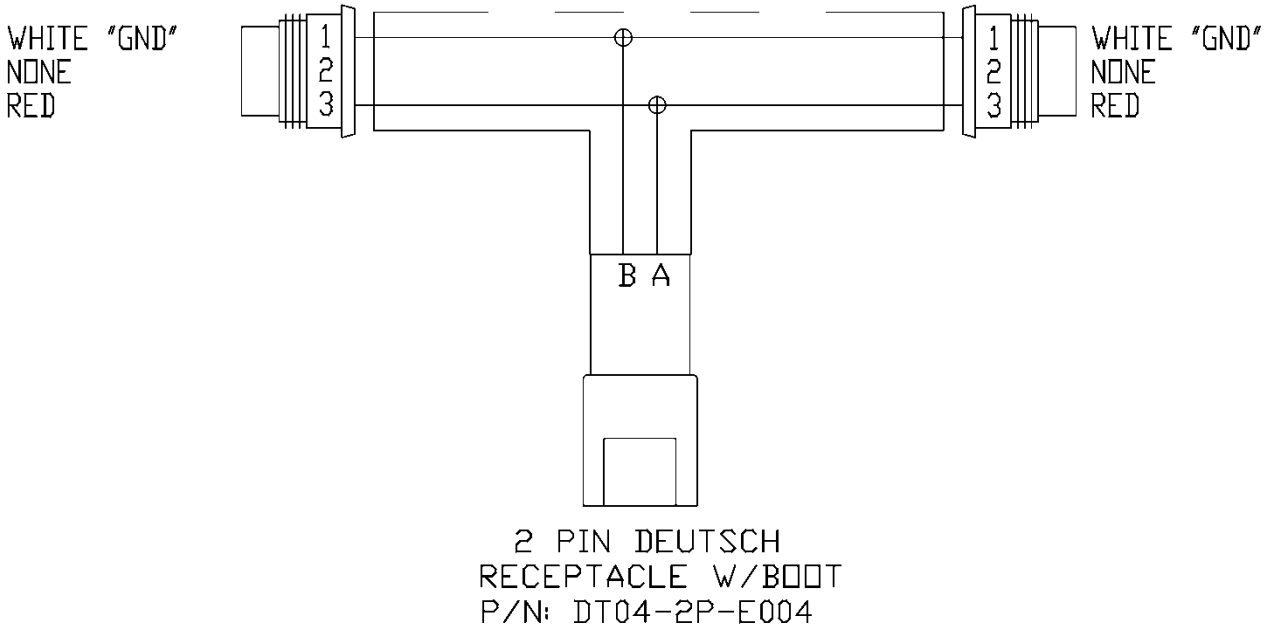
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SCHEMATICS
CAMERA FLOOD LIGHTS TAILGATE MIDDLE CLUSTER
HARNESS - 263-0891-004



DUAL FRONT MOUNT ALLIED LED STROBE HARNESS - 263-0899-002

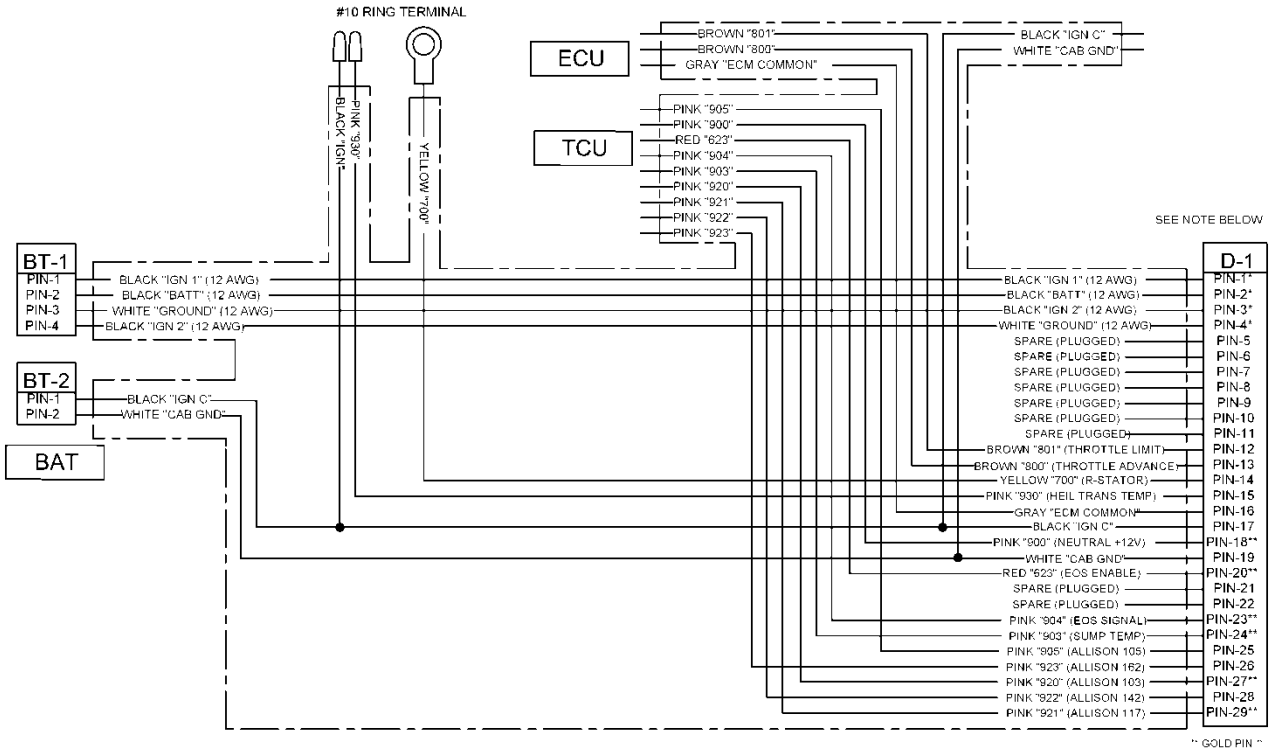


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SCHEMATICS

CCC CHASSIS INTERFACE HARNESS - 263-1471-001



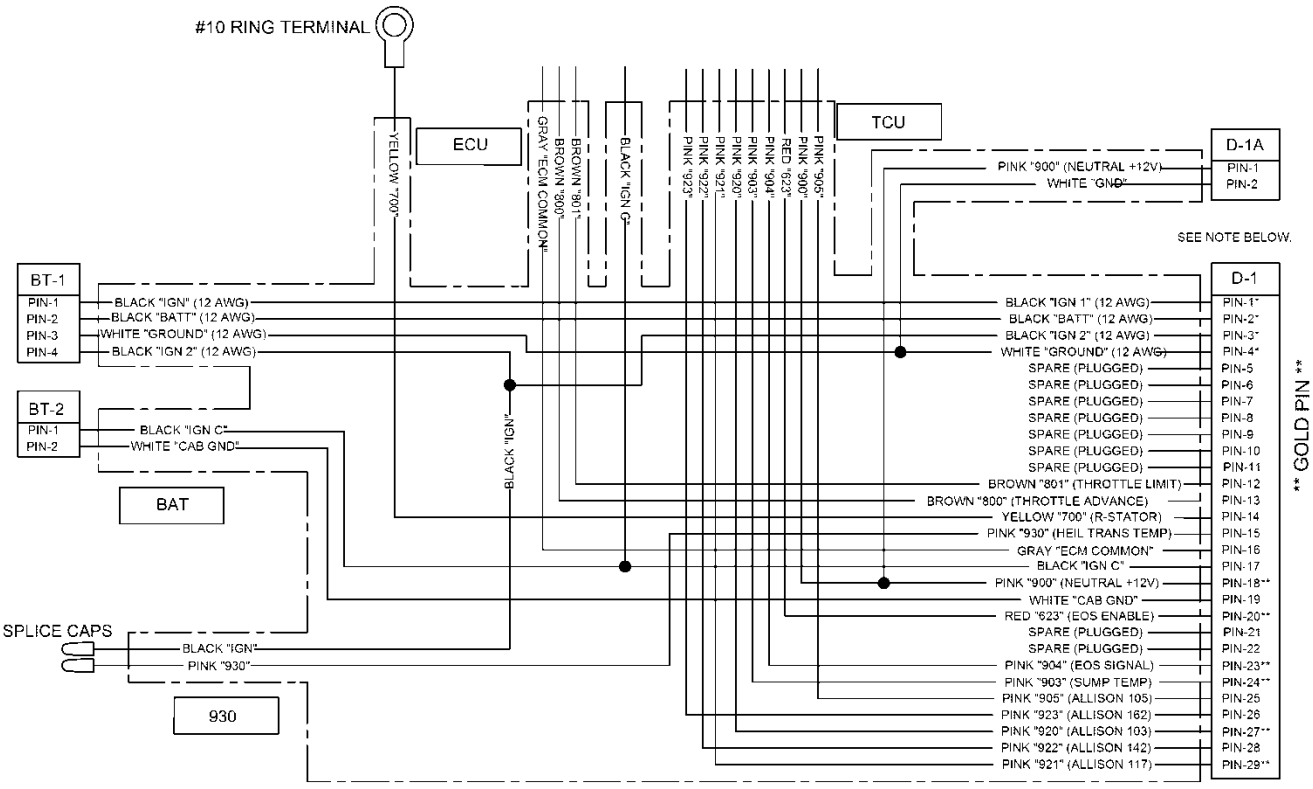
NOTE:
PIN-X = SIZE 16 DEUTSCH PIN
PIN-X* = SIZE 12 DEUTSCH PIN
PIN-X** = SIZE 20 DEUTSCH PIN

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SCHEMATICS

CONDOR CHASSIS INTERFACE HARNESS - 263-1471-002



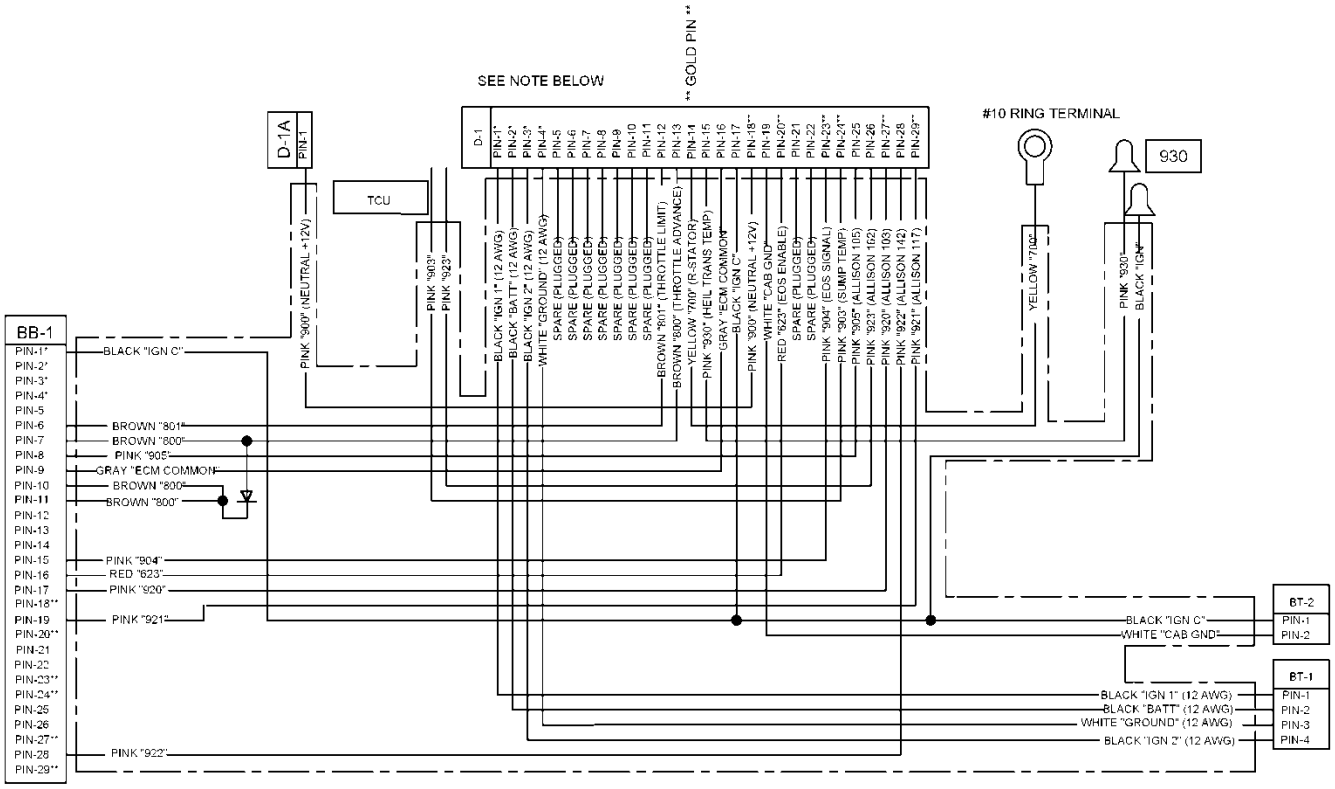
NOTE:
PIN-X = SIZE 16 DEUTSCH PIN
PIN-X* = SIZE 12 DEUTSCH PIN
PIN-X** = SIZE 20 DEUTSCH PIN

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Recycle 2000™

SCHEMATICS

LEU CHASSIS INTERFACE HARNESS - 263-1471-005



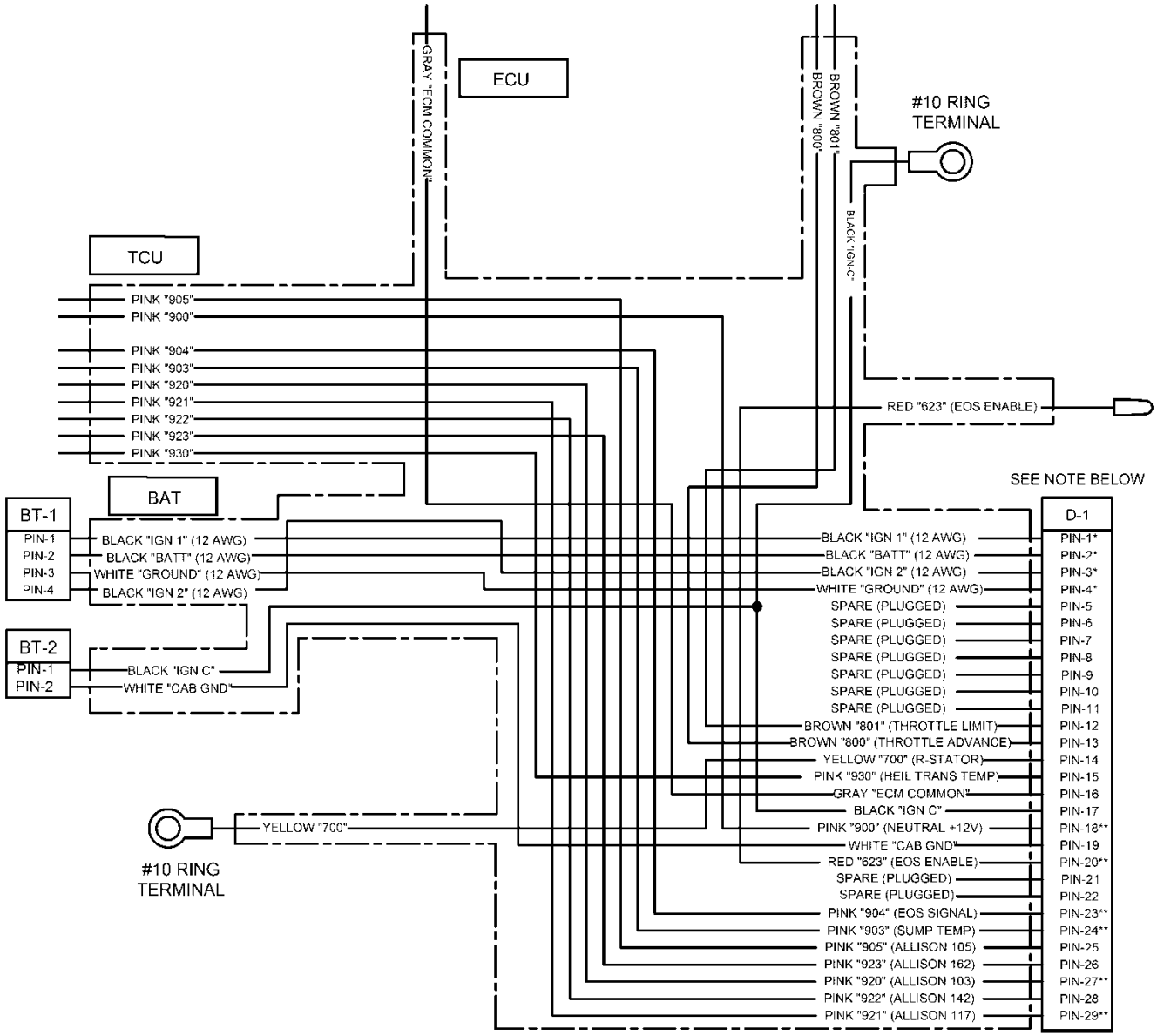
NOTE:
PIN-X = SIZE 16 DEUTSCH PIN
PIN-X* = SIZE 12 DEUTSCH PIN
PIN-X** = SIZE 20 DEUTSCH PIN

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Recycle 2000™

SCHEMATICS

PETERBILT CHASSIS INTERFACE HARNESS - 263-1471-012



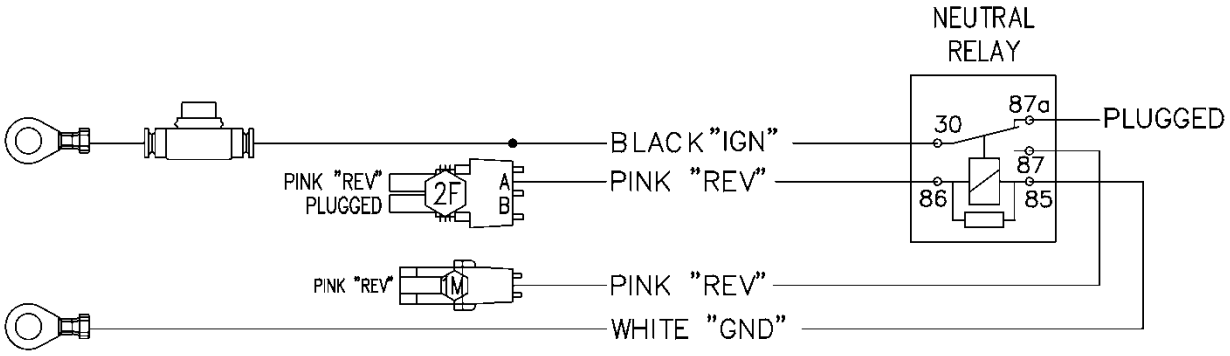
NOTE:
PIN-X =SIZE 16 DEUTSCH PIN
PIN-X*=SIZE 12 DEUTSCH PIN
PIN-X**=SIZE 20 DEUTSCH PIN

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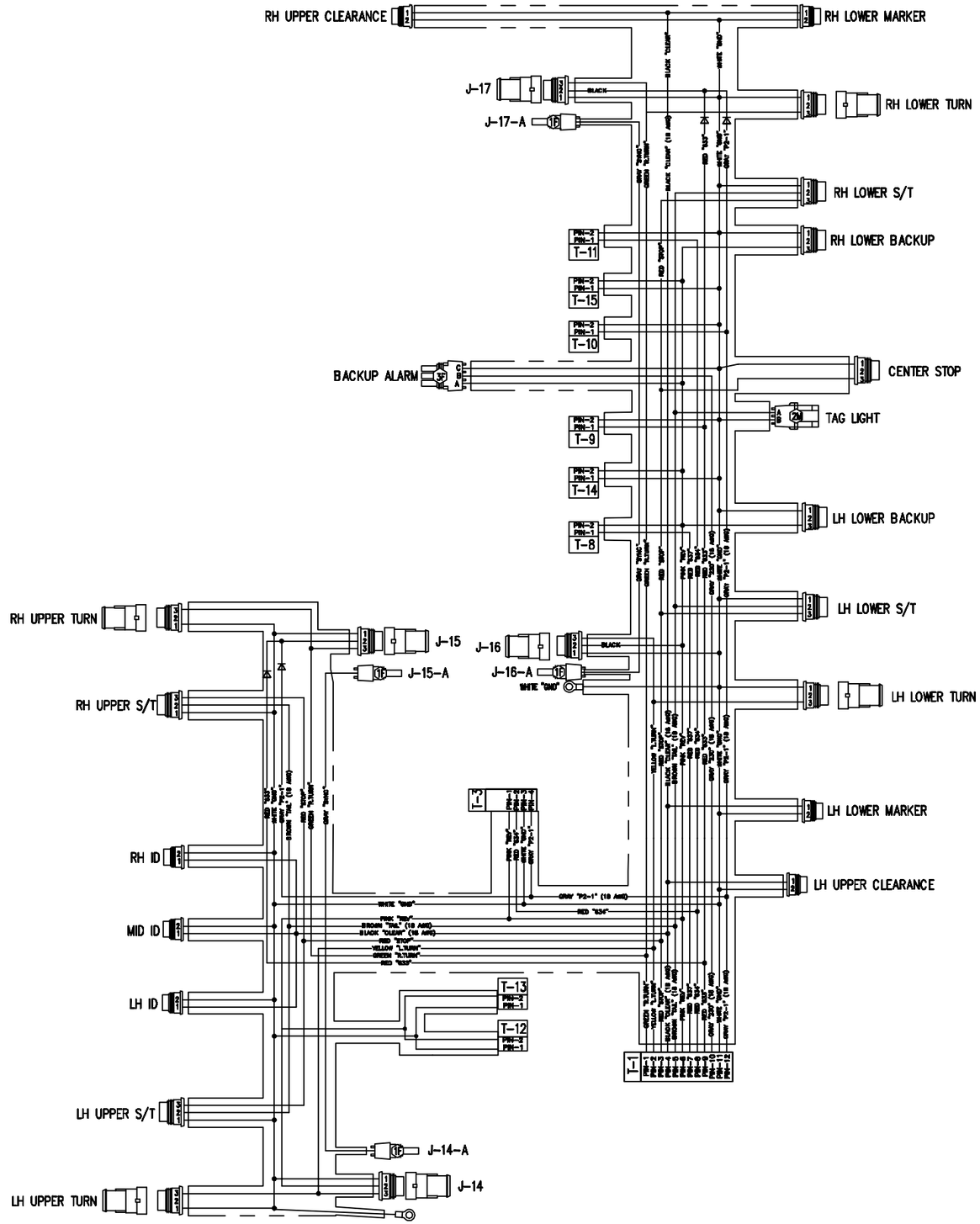
Recycle 2000™

SCHEMATICS

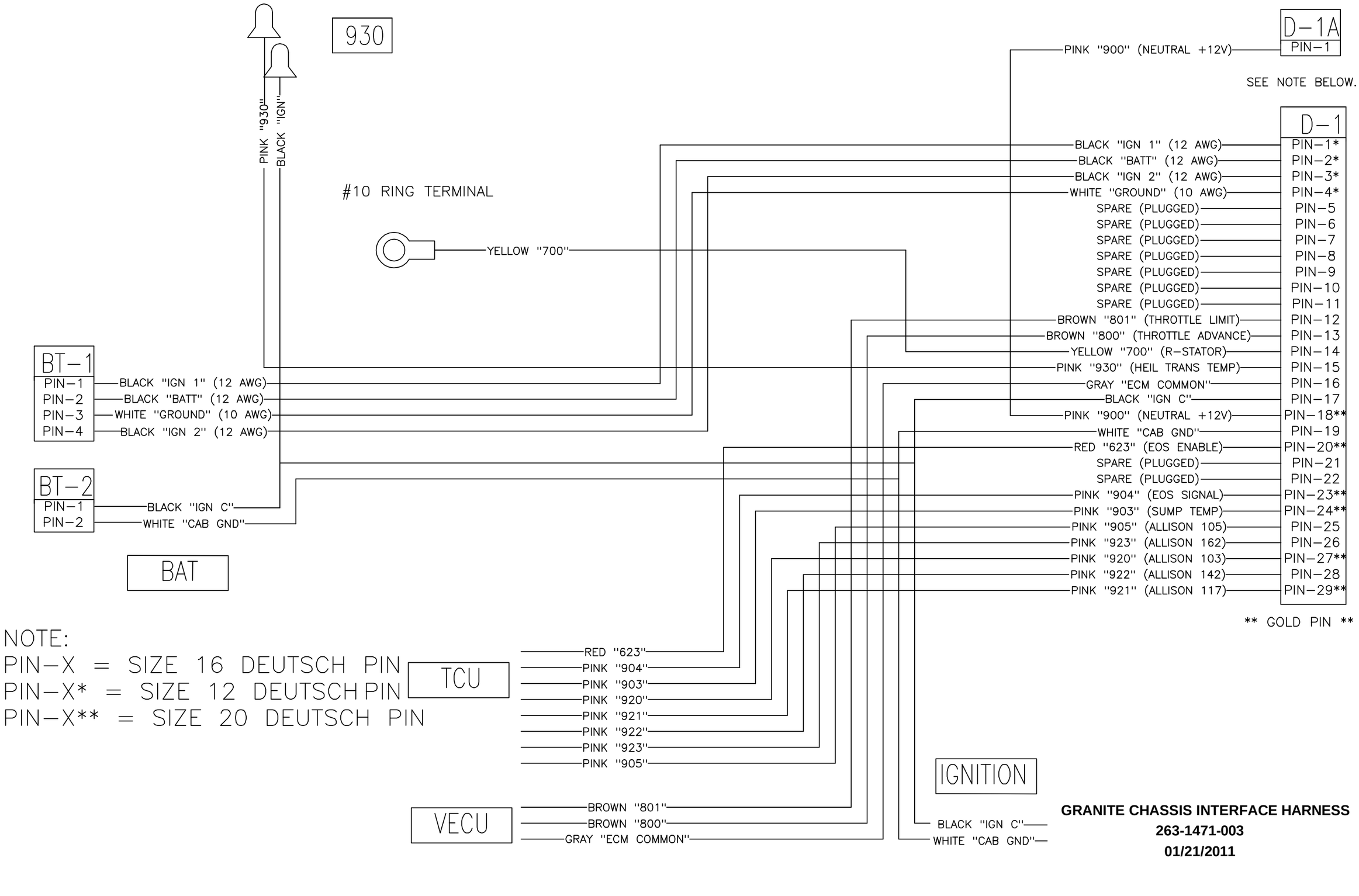
PETERBILT REVERSE SIGNAL RELAY HARNESS – 263-1541



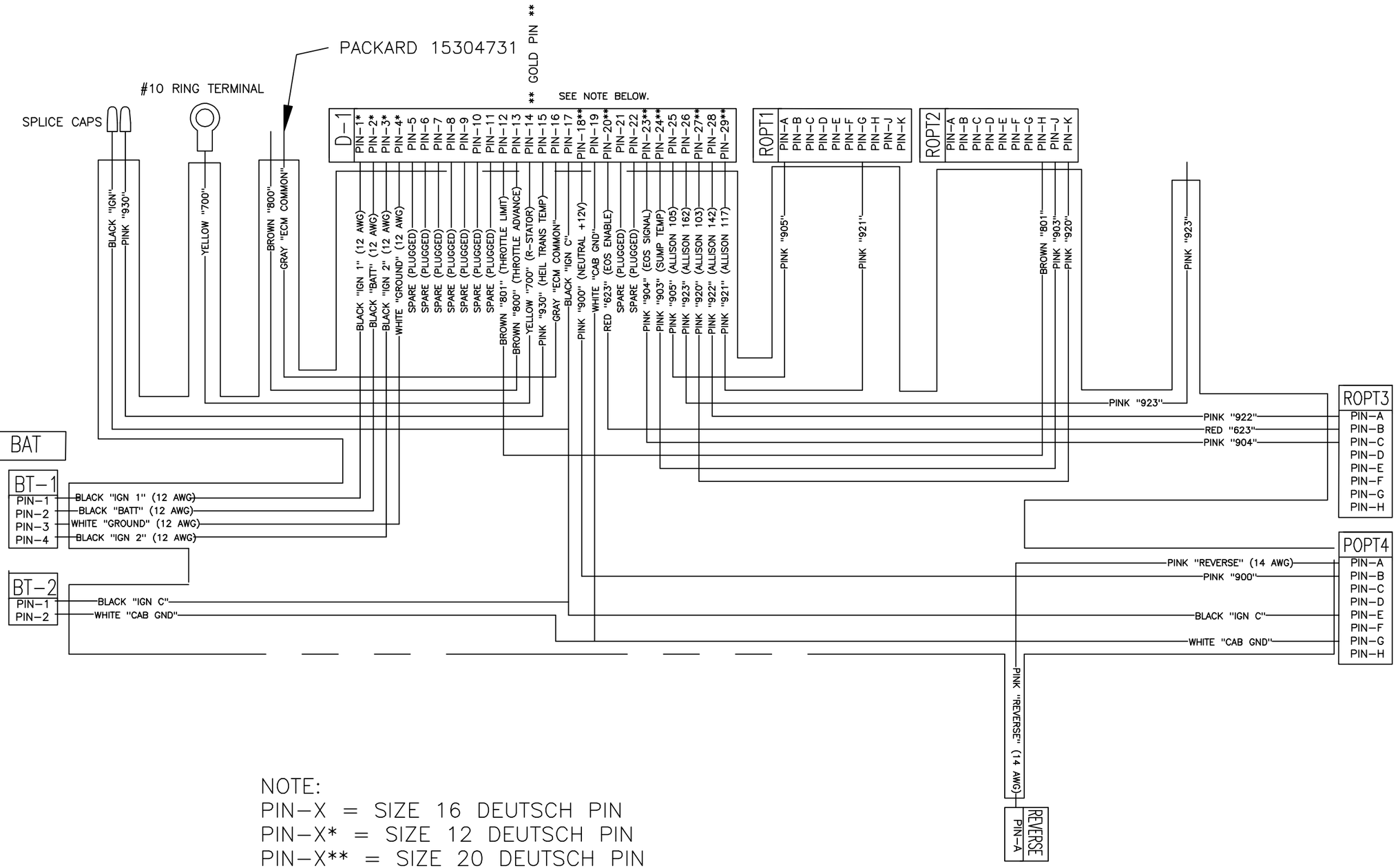
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LED AMP CONNECTORS TAILGATE HARNESS
263-1658
10/26/2011

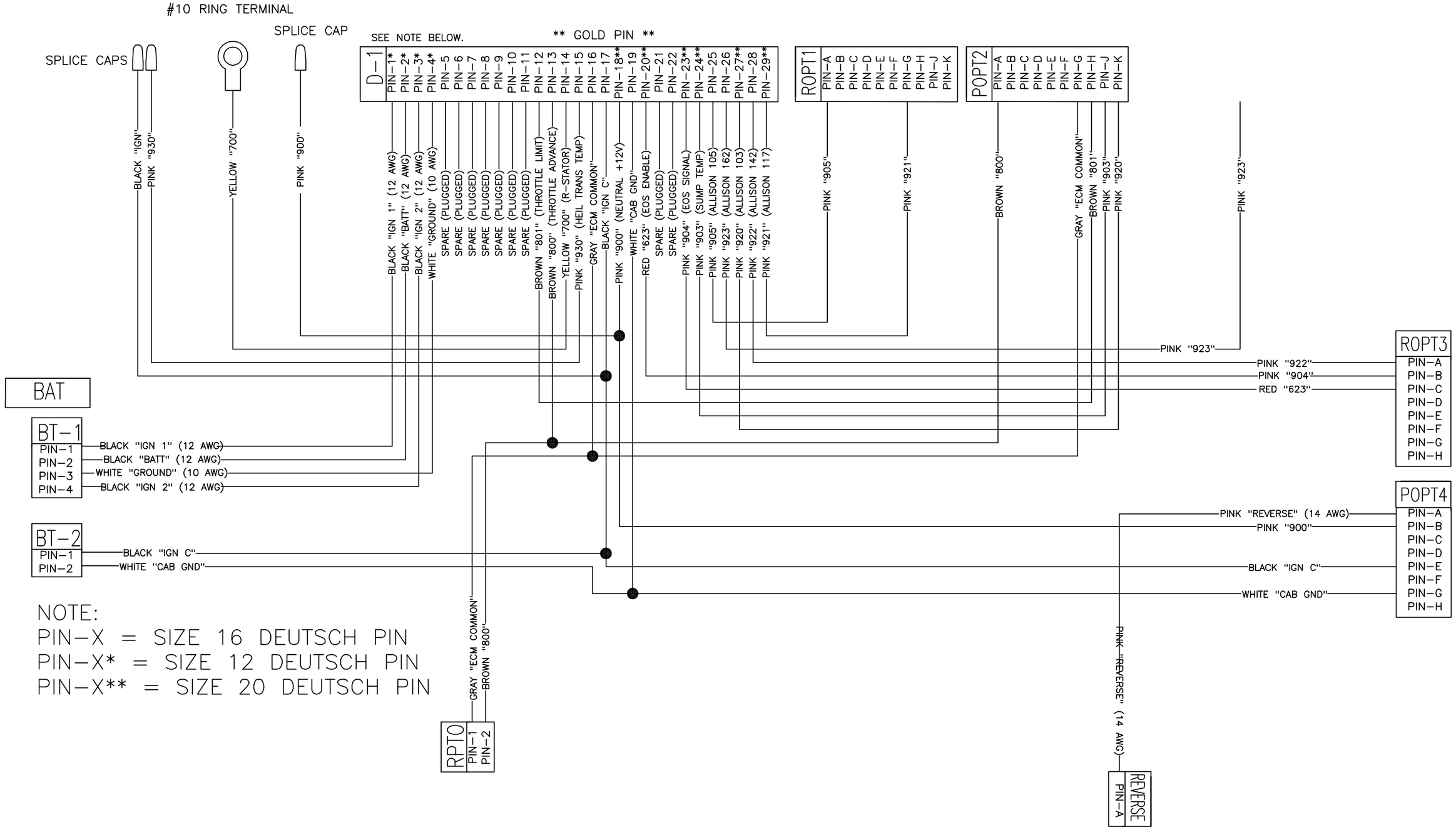


GRANITE CHASSIS INTERFACE HARNESS
263-1471-003
01/21/2011

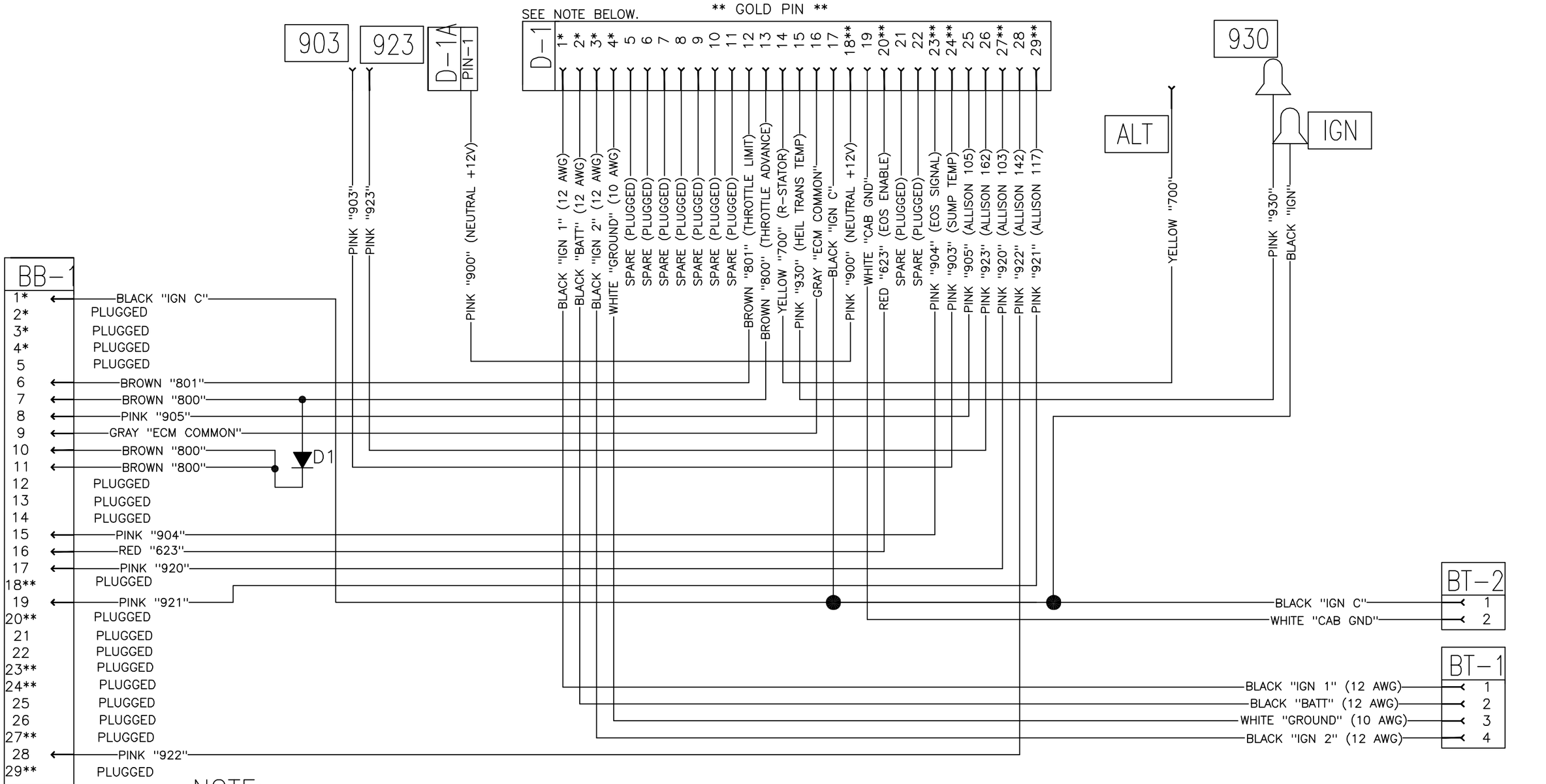


NOTE:
PIN–X = SIZE 16 DEUTSCH PIN
PIN–X* = SIZE 12 DEUTSCH PIN
PIN–X** = SIZE 20 DEUTSCH PIN

WXLL CHASSIS INTERFACE HARNESS
263-1471-004
09/29/2009

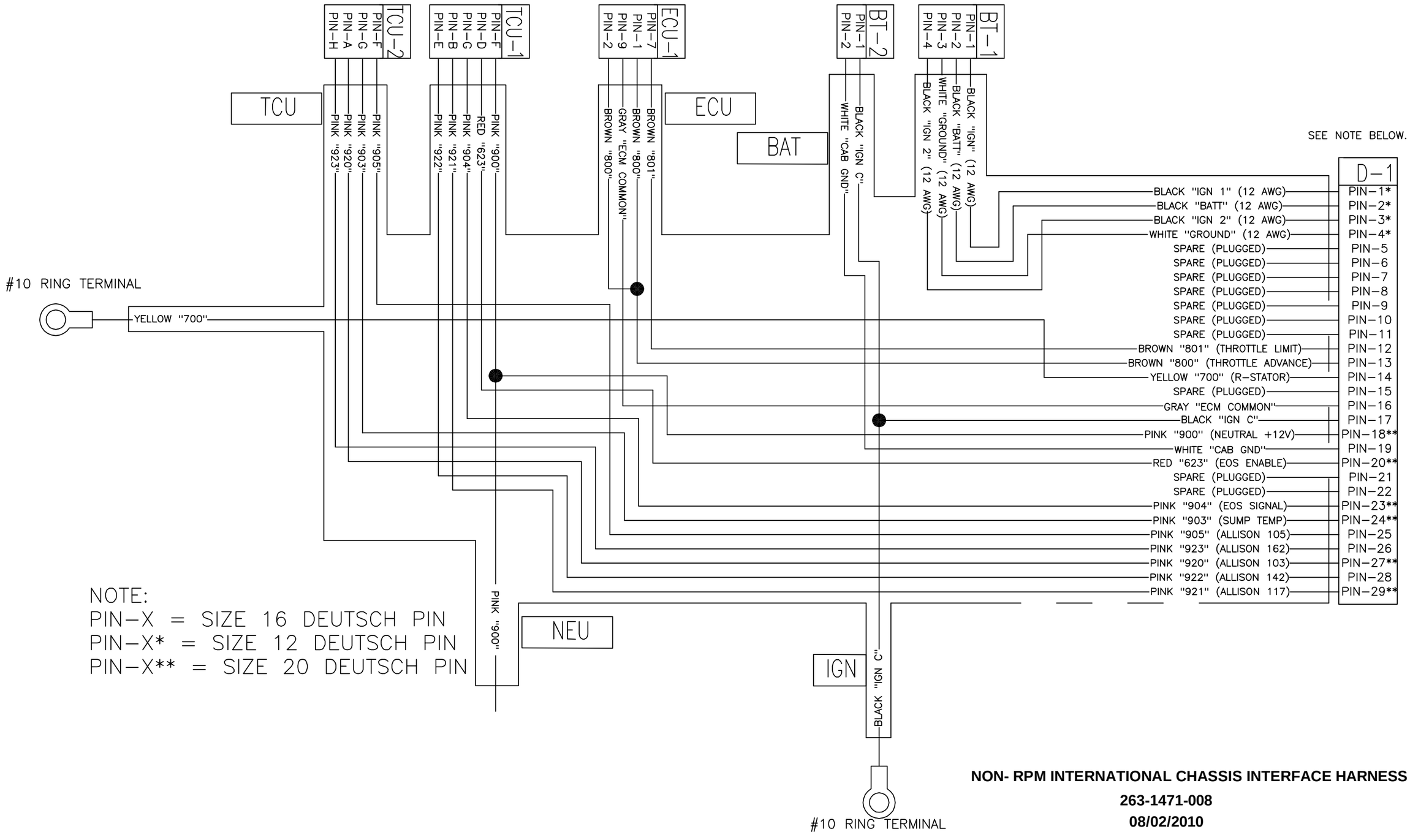


ACX CHASSIS INTERFACE HARNESS
263-1471-006
03/23/2011



NOTE:
PIN-X = SIZE 16 DEUTSCH PIN
PIN-X* = SIZE 12 DEUTSCH PIN
PIN-X** = SIZE 20 DEUTSCH PIN

MRU CHASSIS INTERFACE HARNESS
263-1471-007
10/13/2010

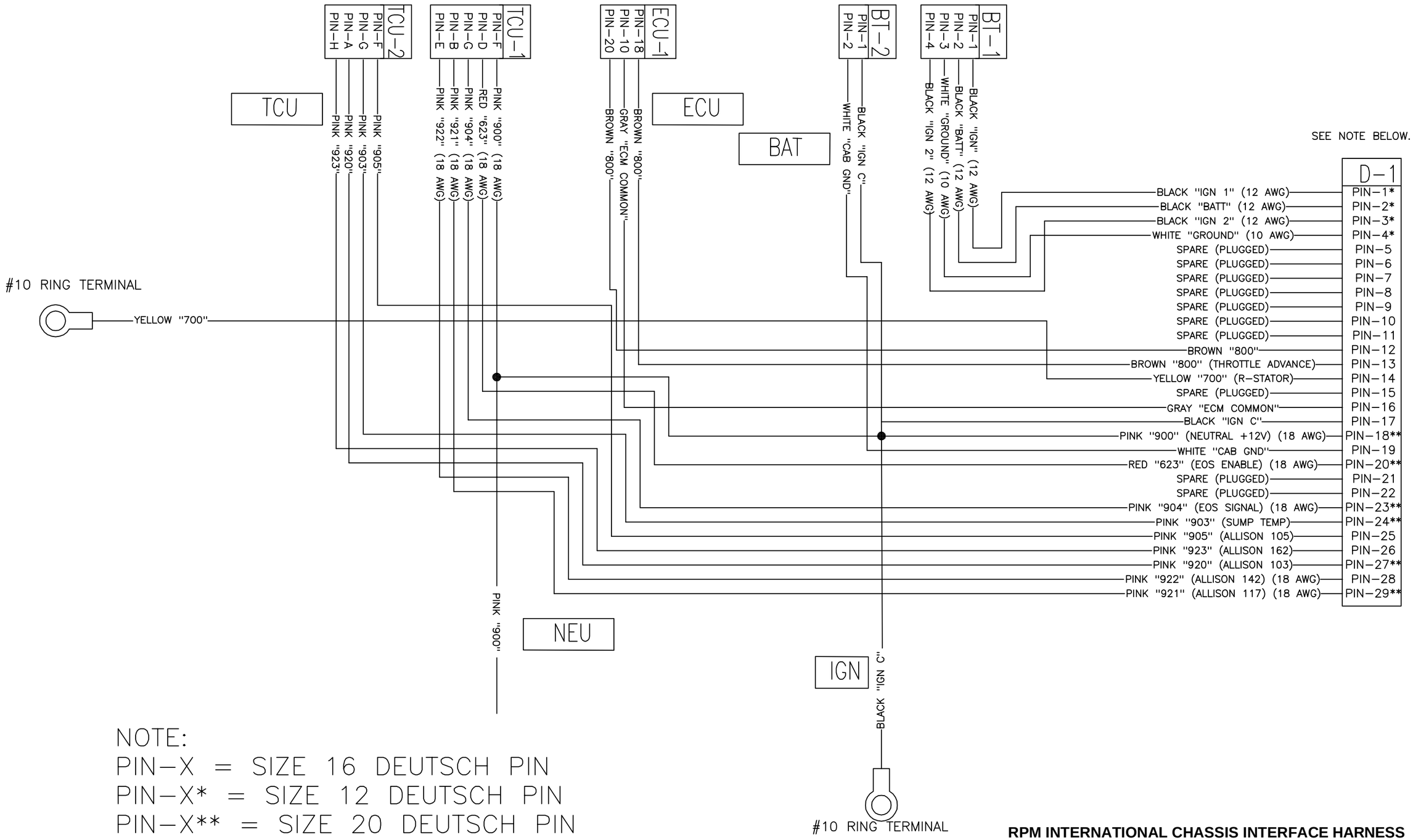


NOTE:
PIN-X = SIZE 16 DEUTSCH PIN
PIN-X* = SIZE 12 DEUTSCH PIN
PIN-X** = SIZE 20 DEUTSCH PIN

NON- RPM INTERNATIONAL CHASSIS INTERFACE HARNESS

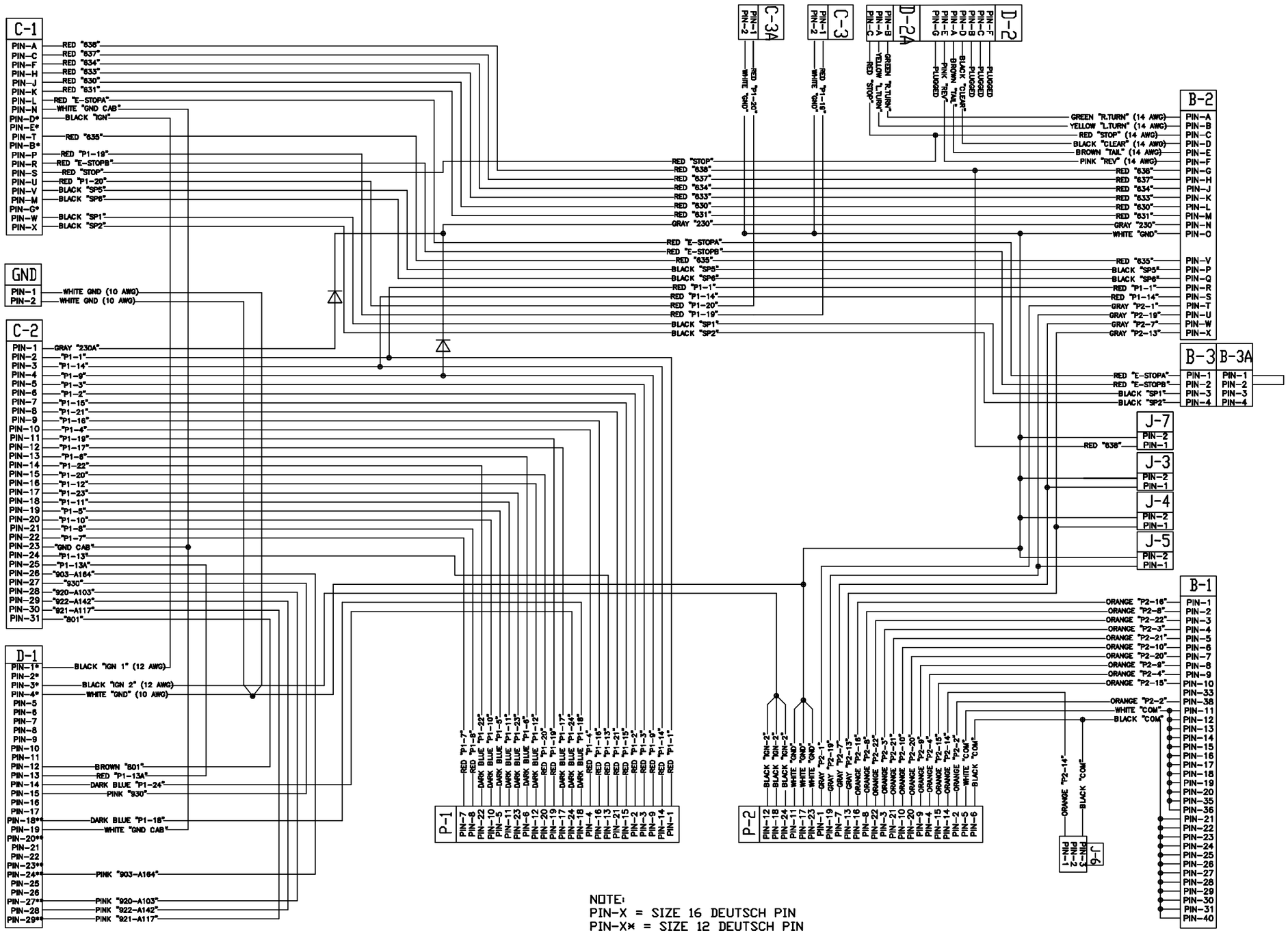
263-1471-008

08/02/2010



NOTE:
PIN–X = SIZE 16 DEUTSCH PIN
PIN–X* = SIZE 12 DEUTSCH PIN
PIN–X** = SIZE 20 DEUTSCH PIN

RPM INTERNATIONAL CHASSIS INTERFACE HARNESS
263-1471-009
08/24/2011

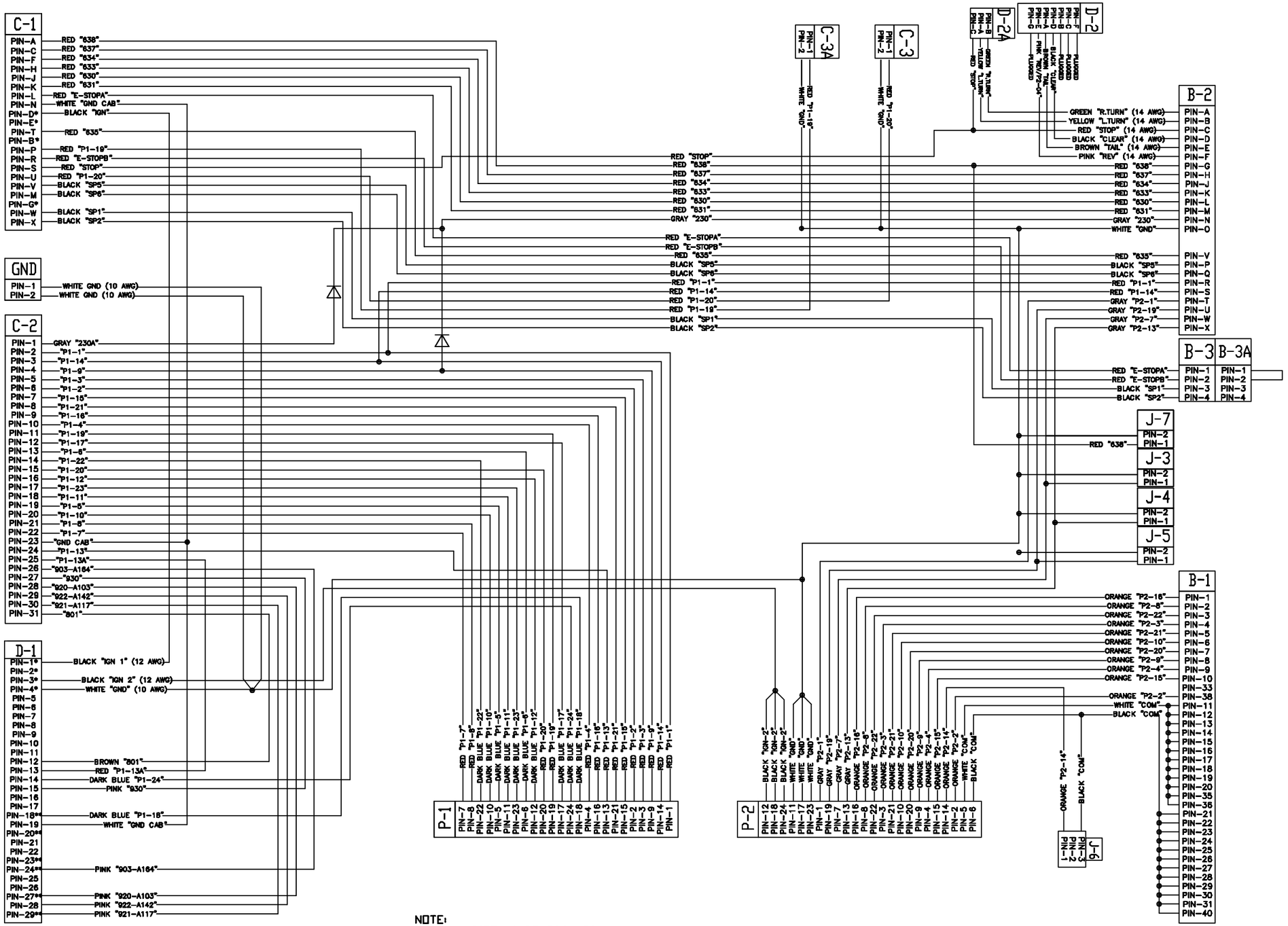


NOTE:
PIN-X = SIZE 16 DEUTSCH PIN
PIN-X* = SIZE 12 DEUTSCH PIN
PIN-X** = SIZE 20 DEUTSCH PIN

INTERNATIONAL CAB TO BODY SCHEMATIC

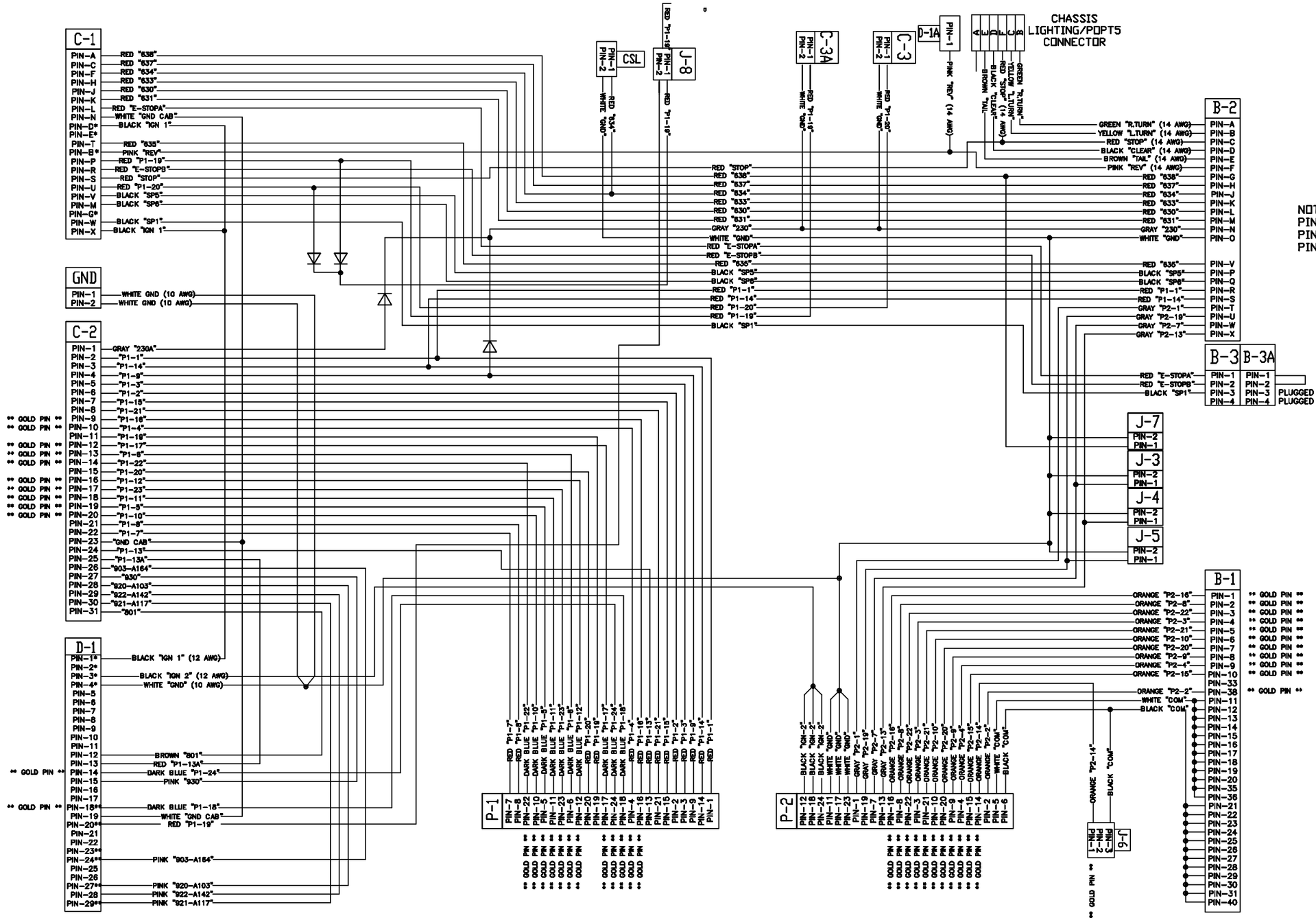
701-8943-004

04/08/2011

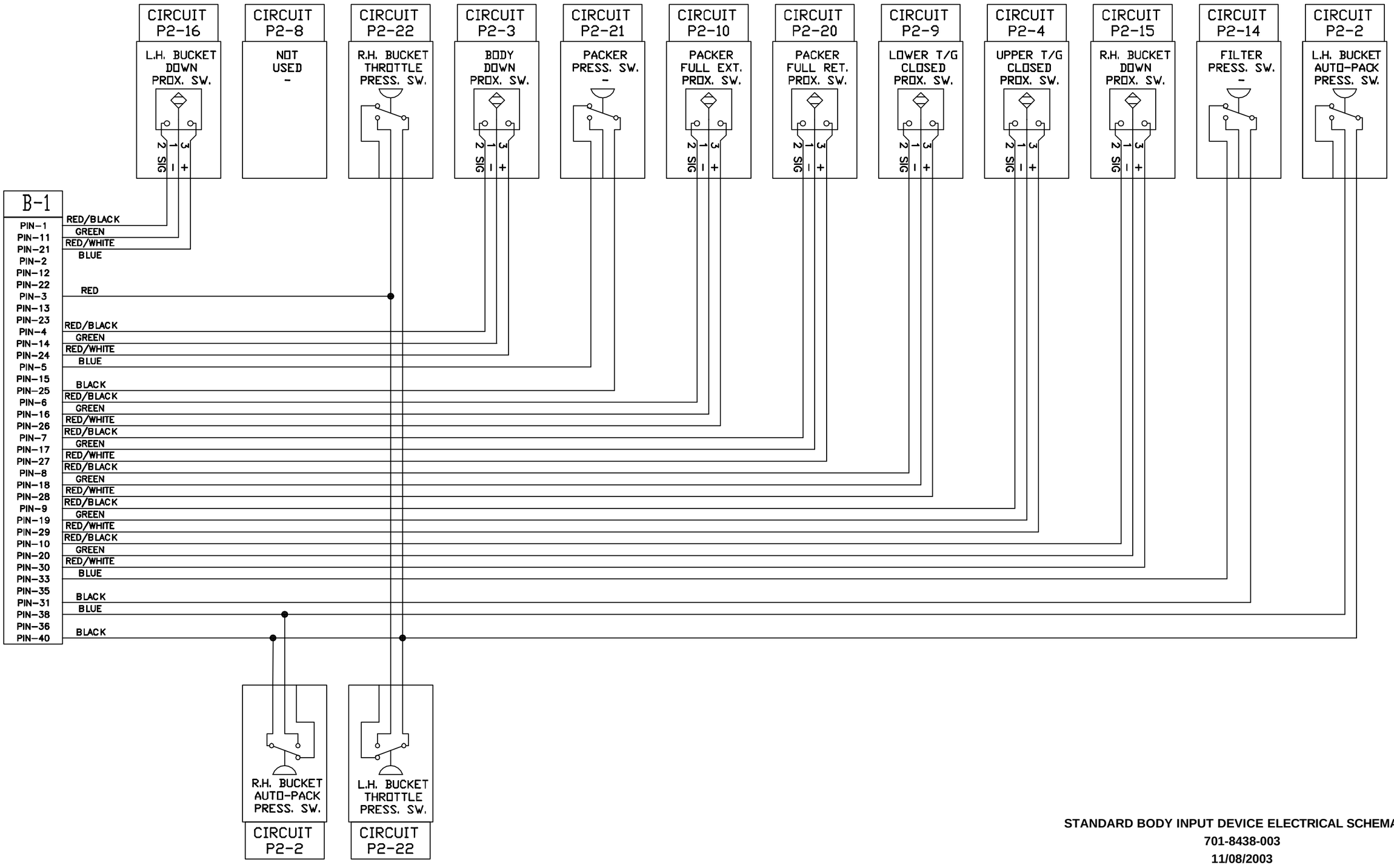


NOTE:
PIN-X = SIZE 16 DEUTSCH PIN
PIN-X* = SIZE 12 DEUTSCH PIN
PIN-X** = SIZE 20 DEUTSCH PIN

MACK GRANITE CAB TO BODY SCHEMATIC
701-8943-006
11/23/2010



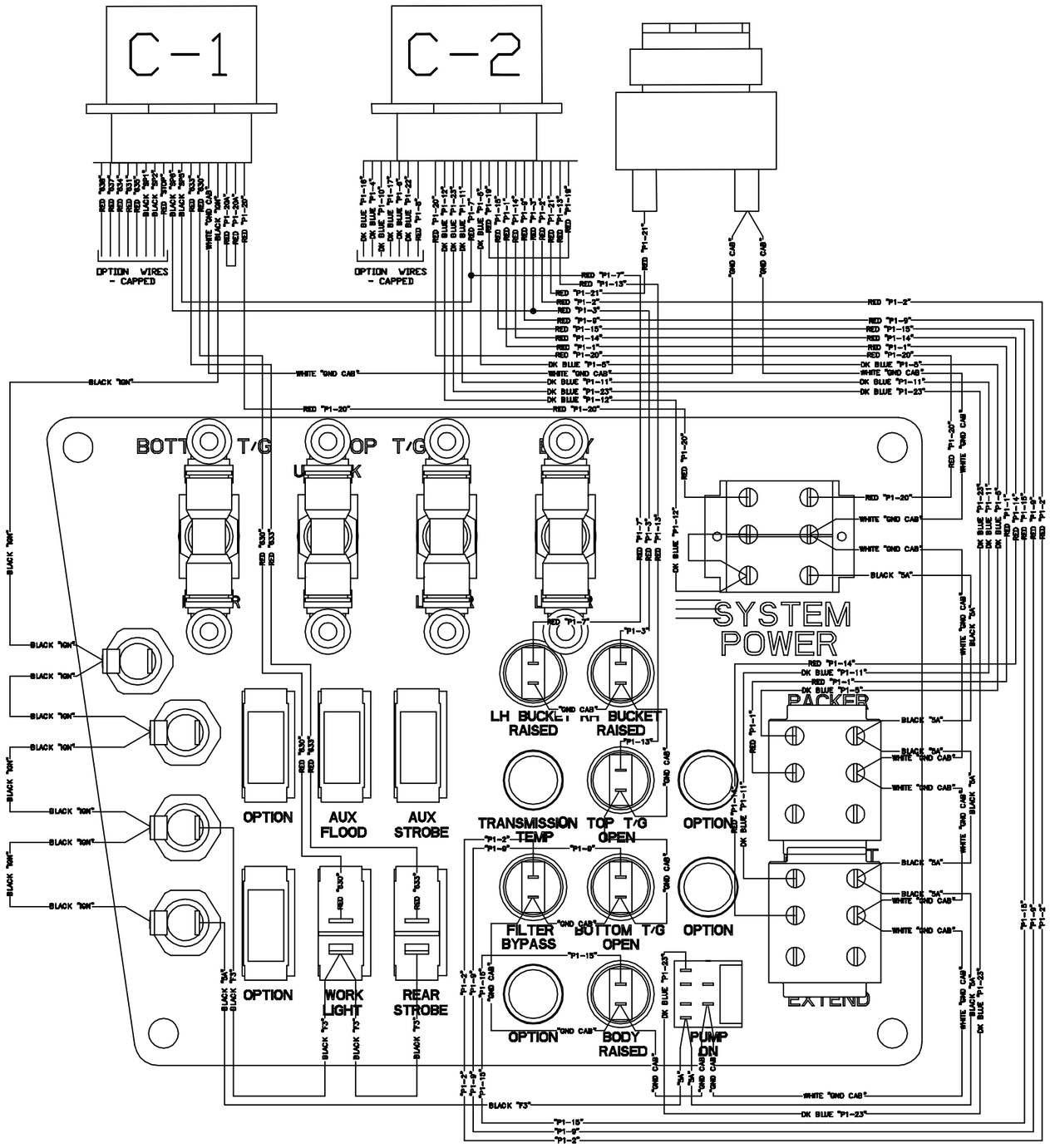
ACX CAB TO BODY SCHEMATIC
701-8943-007
01/09/2012



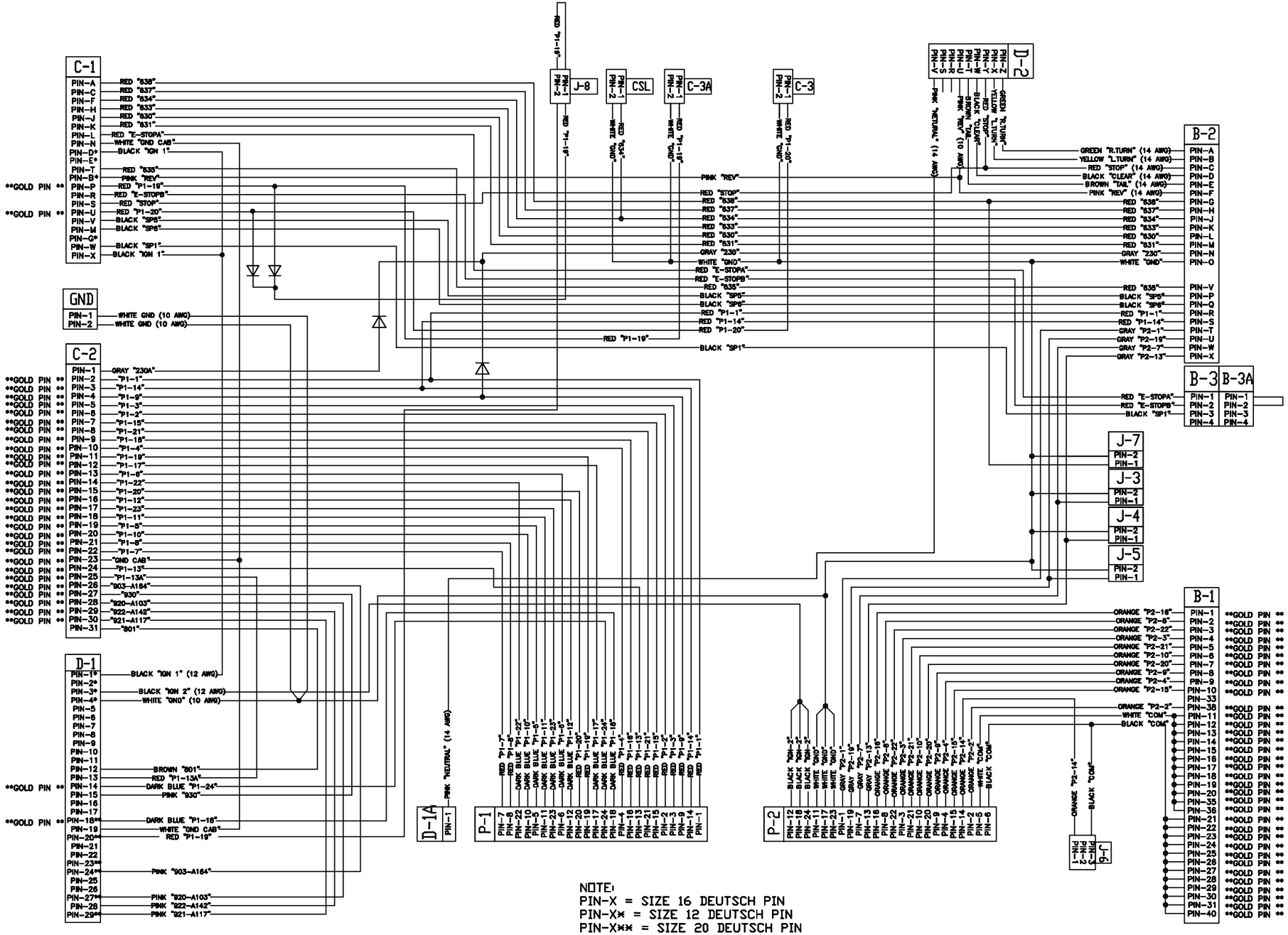
STANDARD BODY INPUT DEVICE ELECTRICAL SCHEMATIC

701-8438-003

11/08/2003

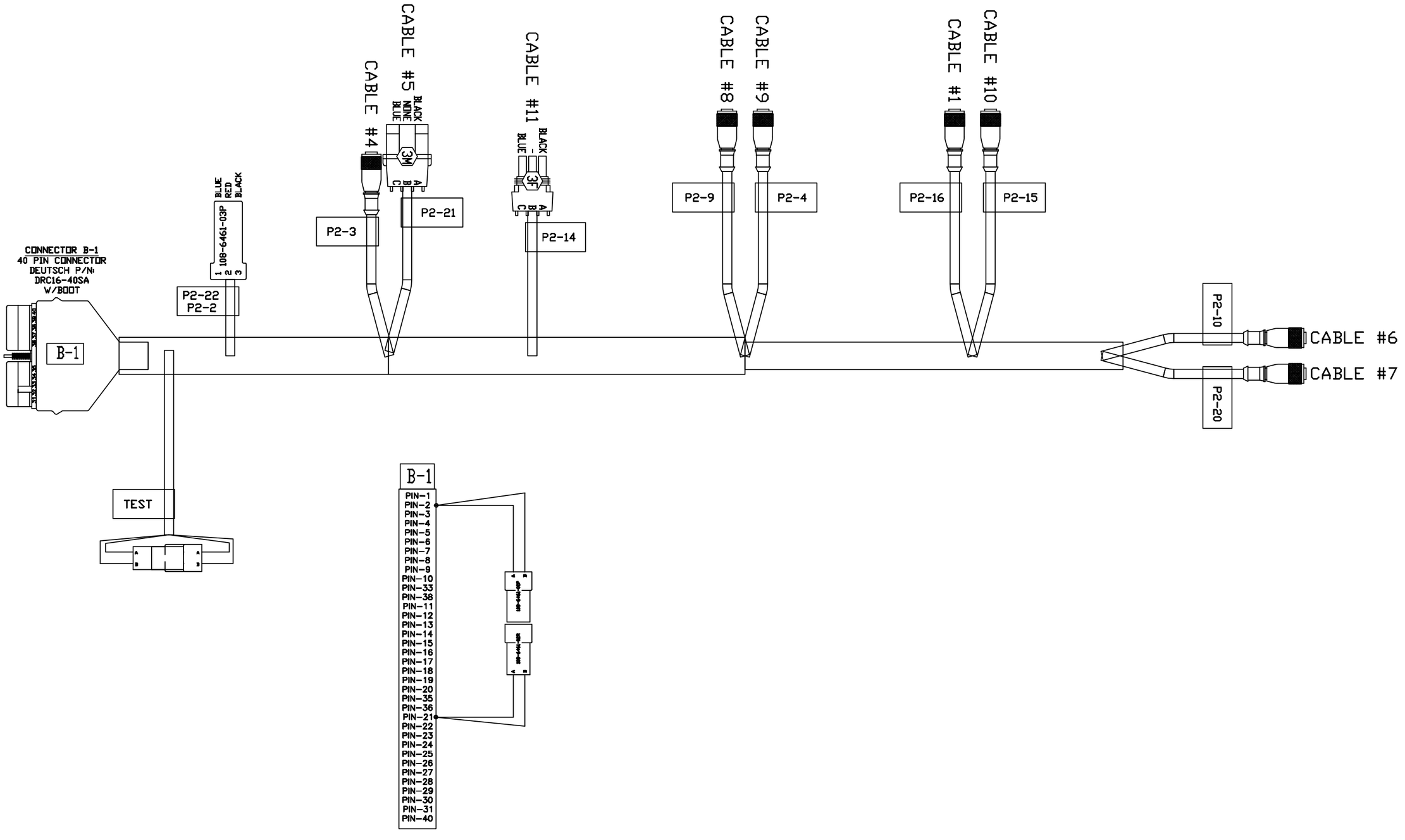


CONTROL BOX ELECTRICAL SCHEMATIC
701-8882-003
06/11/2010



NOTE:
PIN-X = SIZE 16 DEUTSCH PIN
PIN-X* = SIZE 12 DEUTSCH PIN
PIN-X** = SIZE 20 DEUTSCH PIN

CAB TO BODY SCHEMATIC
701-8943-001
01/09/2012



DETAIL A
WIRE COLOR TO BE
RED W/WHITE

MAIN BODY INPUT DEVICE HARNESS
263-1037-003
06/25/2004

BOX 1
108-8388
RELAY & FUSE BLOCK
#1

BOX 2
108-8388
RELAY & FUSE BLOCK #2

BOX 3
108-8388
DIODE BLOCK

108-6461-02R
TAIL
LIGHT
CONNECTOR

108-6461-02P
SMART
LIGHT
CONNECTOR

108-6461-02P

108-6461-02R
SMART/TAIL
LIGHT
CONNECTOR

PDC
TO
CHASSIS
POWER
CONNECTOR

108-8411-006

PDC
TO
FRONT
CONNECTOR

108-4815-420

108-4815-424

PDC
TO
TAILGATE
CONNECTOR

108-4815-430

PDC
TO
CHASSIS
CONNECTOR

AUTO
NEUTRAL
CONNECTOR

WHELEN
STROBE
CONNECTOR

108-8450-001

MINI-PLC
CONNECTOR

TRANS
TEMP
RELAY
CONNECTOR

NEUTRAL
RELAY
CONNECTOR

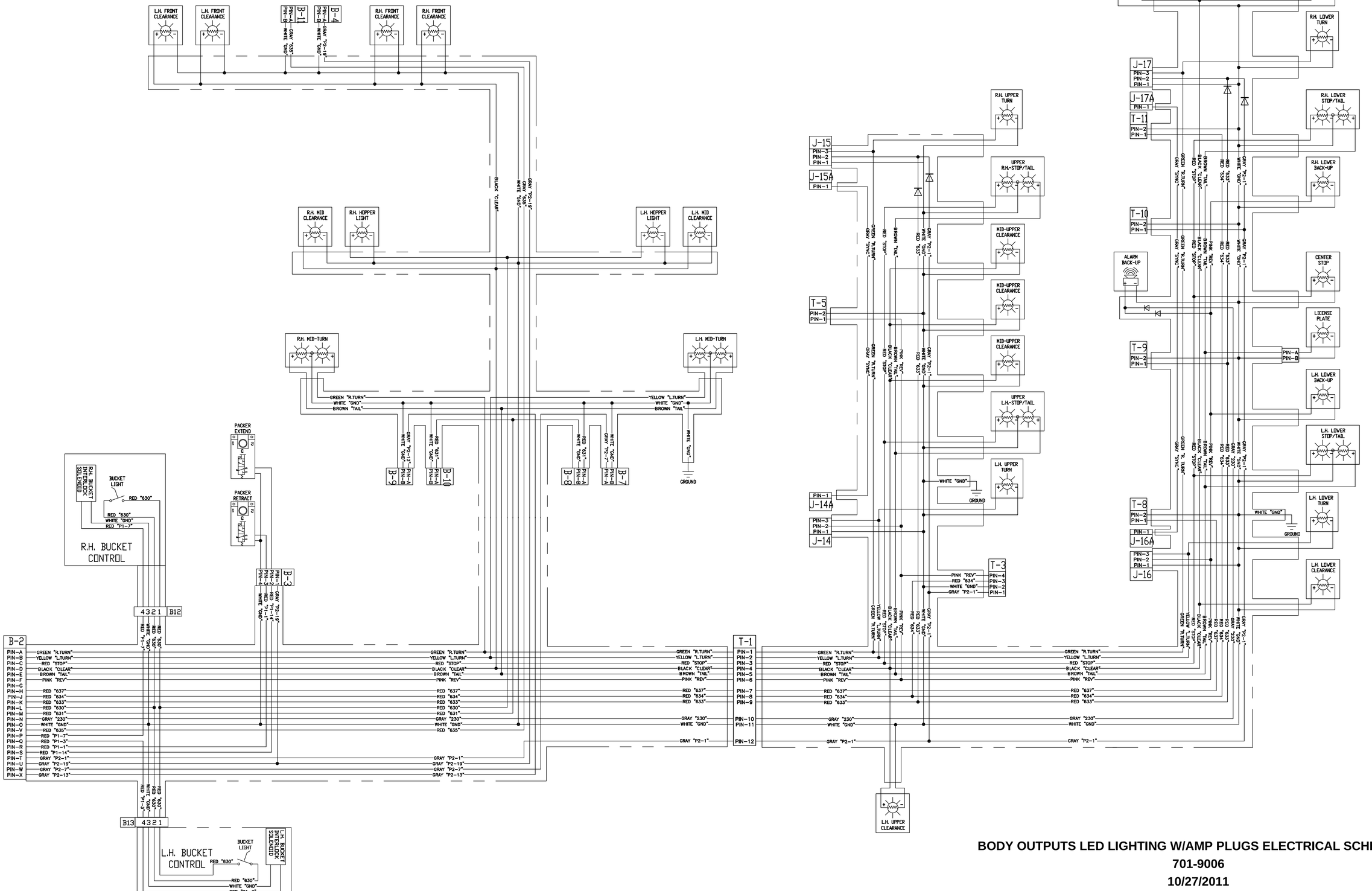
E-STOP
RELAY
CONNECTOR

IGNITION PWR
RELAY

OIN ELECTRICAL SCHEMATIC

701-8881-005

06/03/2011



BODY OUTPUTS LED LIGHTING W/AMP PLUGS ELECTRICAL SCHEMATIC

701-9006

10/27/2011

HEIL ENVIRONMENTAL WARRANTY STATEMENT

The Heil Co. d/b/a Heil Environmental ("Heil") warrants its solid waste collection equipment to be free from defects in material and workmanship under normal single-shift use for a period of six (6) months or 1250 hours of operation (whichever comes first) from the date of equipment In-Service or during the period of coverage offered by an extended warranty program, when operated in accordance with its *Operator's Manual* and proper service and maintenance as described in Heil *Service Bulletins* and *Parts & Service Manuals* are performed. The standard or extended equipment warranty is not transferable except for sales demonstration units.

This warranty is expressly limited to the repair or replacement of any component or part thereof, of any such refuse or recycling collection body manufactured by Heil that is proven to Heil's satisfaction to have been defective in material or workmanship. Such components or parts shall be repaired or replaced at Heil's option without cost to the standard purchaser for parts and labor provided such unit is returned to an authorized Heil Dealer for replacement or repair. The repair or replacement must be made during the standard or extended warranty coverage period.

Before any warranty can be allowed on new equipment, a validated warranty registration form must be on file with Heil's Customer Service Department within sixty (60) days of the equipment's In-Service date. Wear items are excluded from warranty coverage.

All OEM service parts sold by Heil have a six (6) month warranty from the date of purchase. Aftermarket parts purchased from Heil are supported by a 90-day warranty. The parts warranty covers parts only, providing that factory inspection reveals a defect in material or workmanship. Labor, troubleshooting, equipment downtime, etc. is not covered under the parts warranty policy.

HEIL MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE. HEIL DOES NOT ASSUME ANY LIABILITY OR ACCEPT CLAIMS FOR LOSS OF PROFITS, PRODUCT DOWN TIME OR ANY OTHER DIRECT, INCIDENTAL OR INDIRECT CONSEQUENTIAL LOSSES, COSTS, DAMAGES OR DELAYS.

Any improper use, operation beyond rated equipment or component capacity, substitution of parts that are not Heil-approved, or any alteration or repair by others in such a manner as in Heil's sole judgment affect the product operation or integrity shall void the warranty.

Other than the extension of the standard warranty period purchased under a supplemental *Heil Extended Warranty Program*, no employee or representative is authorized to modify this warranty in any way nor shall any other warranties be granted. No dealer-supplied warranty program is endorsed or supported by Heil.

Heil retains the right to modify its factory warranty program prospectively at any time.



www.heil.com

Customer Care Phone:
866-ASK-HEIL
(866-275-4345)

Parts Central Phone:
800-528-5308

Technical Service Phone:
866-310-4345

Customer Support
Heil Environmental
4301 Gault Avenue North
Fort Payne, AL 35967-9984

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